

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMAL SPECIES OF NORTH CAROLINA

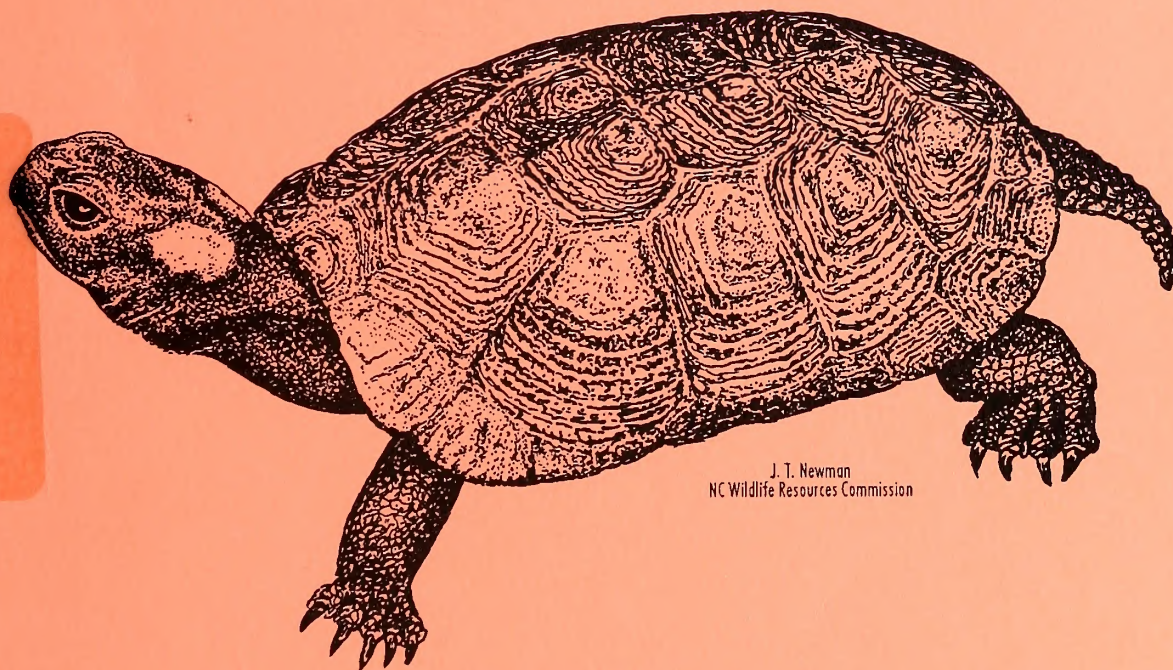
LIBRARY

JUL 11 1995

~~NO DEPT. OF ENVIRONMENT, HEALTH
& NATURAL RESOURCES~~

Doc
QL84.22
.N8
N38
1995

C12
202:A59
1995



Compiled by
Harry E. LeGrand Jr., Vertebrate Zoologist
and Stephen P. Hall, Invertebrate Zoologist

North Carolina Natural Heritage Program
Division of Parks and Recreation
N.C. Department of Environment, Health and Natural Resources 1995

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA*

1995 Edition

LIBRARY

JUL 11 1995

compiled by Harry E. LeGrand Jr., Vertebrate Zoologist
and by Stephen P. Hall, Invertebrate Zoologist
North Carolina Natural Heritage Program
Division of Parks and Recreation
Department of Environment, Health, and Natural Resources

* This list is dynamic and is revised frequently as further data become available. New species are added to the list, and others are dropped from the list for various reasons. The list will be revised periodically, generally once every year or two. If you are using a copy of this list which is more than a year old (check the edition date at the top of the first page), it might be invalid and you should request a new version. Further information on these species may be obtained by contacting the North Carolina Natural Heritage Program, Division of Parks and Recreation, Department of Environment, Health, and Natural Resources, P.O. Box 27687, Raleigh, NC 27611-7687 or the Nongame and Endangered Wildlife Program, North Carolina Wildlife Resources Commission, 512 North Salisbury Street, Raleigh, NC 27611.

C12
202: A59
1995

2000

TABLE OF CONTENTS

| | |
|--|----|
| INTRODUCTION | 1 |
| LIST FORMAT | 3 |
| STATUS OF ANIMAL TAXA ON NHP RARE ANIMAL LIST | 9 |
| NUMBER OF ANIMAL SPECIES IN NORTH CAROLINA | 10 |
| MAMMALS | 11 |
| BIRDS | 13 |
| REPTILES | 17 |
| AMPHIBIANS | 18 |
| FRESHWATER FISHES | 19 |
| MARINE AND ESTUARINE FISHES | 23 |
| MOLLUSKS | 23 |
| FRESHWATER BIVALVES | 23 |
| FRESHWATER GASTROPODS | 26 |
| TERRESTRIAL GASTROPODS | 27 |
| ARACHNIDS | 29 |
| CRUSTACEANS | 30 |
| INSECTS | 31 |
| MAYFLIES | 31 |
| CADDISFLIES | 31 |
| DRAGONFLIES | 32 |
| FLIES | 33 |
| MOTHS | 34 |
| BUTTERFLIES | 37 |
| GRASSHOPPERS AND KATYDIDS | 40 |
| BEETLES | 40 |
| SUPPLEMENT TO THE NATURAL HERITAGE PROGRAM LIST OF THE RARE | |
| ANIMALS OF NORTH CAROLINA | 43 |
| NORTH CAROLINA ANIMAL WATCH LIST | 45 |
| MAMMALS | 47 |
| BIRDS | 47 |
| REPTILES | 49 |
| AMPHIBIANS | 49 |
| FRESHWATER FISHES | 50 |
| MOLLUSKS | 50 |
| FRESHWATER BIVALVES | 50 |
| MARINE BIVALVES | 51 |
| MARINE GASTROPODS | 51 |
| ARACHNIDS | 51 |
| CRUSTACEANS | 52 |
| MILLIPEDES | 53 |
| INSECTS | 53 |
| DRAGONFLIES AND DAMSELFLIES | 53 |
| SCORPIONFLIES | 54 |

| | |
|---|----|
| MOTHS | 54 |
| BUTTERFLIES | 57 |
| GRASSHOPPERS AND KATYDIDS | 58 |
| BEETLES | 59 |
| ANTS | 60 |
| ANNELIDS | 60 |
| POTENTIAL NEW TO NORTH CAROLINA ANIMALS | 61 |
| MAMMALS | 61 |
| BIRDS | 62 |
| REPTILES | 63 |
| AMPHIBIANS | 63 |
| FISHES | 64 |
| INSECTS | 65 |
| BUTTERFLIES | 65 |
| REFERENCES | 67 |
| NORTH CAROLINA NATURAL HERITAGE PROGRAM SPECIAL ANIMAL SURVEY FORM | 69 |

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

INTRODUCTION

The attached list of animals represents those species of vertebrates and invertebrates for which the N.C. Natural Heritage Program (NC NHP) is collecting data — in files, on computer, and on topographic maps. This is not strictly a list of protected animals; in fact, the majority of these species receive no formal protection whatsoever. Rather, it is a list of species that are endangered, threatened, or otherwise occur in small or unknown numbers in the state. The primary functions of the list are its use: 1) in determining priorities of inventory and protection for these animals — including the proposed listing of species for federal or state protection; 2) in determining priorities for protection of natural areas that contain such listed animals; and 3) in environmental assessments to "flag" rare species and their locations that might be negatively affected by proposed actions.

The majority of the vertebrates on the list are those species currently listed for state protection by the N.C. Wildlife Resources Commission (WRC). Scientific councils regarding mammals, birds, reptiles and amphibians, freshwater fishes, and mollusks have already submitted their lists of state Endangered (E), Threatened (T), and Special Concern (SC) species to WRC. All of these species are included on this list, with the corresponding status listed in the "N.C. Status" column. (In addition, NC NHP is tracking other rare vertebrates and mollusks not given a formal state designation. These species are considered to be Significantly Rare (SR) in North Carolina.)

As of March 1995, Endangered, Threatened, and Special Concern species of mammals, birds, reptiles, amphibians, freshwater fishes, and freshwater and terrestrial mollusks are protected by state law, under the jurisdiction of the WRC. A list of crustaceans proposed for state protection has been compiled by a scientific council and submitted to WRC, but no action by WRC has yet been taken to list them for state protection. These species (crustaceans) have been assigned an SR status in this NC NHP publication because the crustacean list has not been adopted for protection. At the present time (March 1995), state law does not allow for protection of invertebrate groups other than mollusks and crustaceans. (NOTE: The list of rare marine and estuarine fishes was presented in 1988 by the N.C. State Museum of Natural Sciences; however, state protection does not cover marine and estuarine animals, and these species are not under the jurisdiction of WRC. Except for the federally listed Endangered Shortnose Sturgeon, all other marine and estuarine fishes were listed in 1988 as "Vulnerable, Category 2." That status has been changed to Significantly Rare in this animal list, with the exception of the Atlantic Sturgeon. Because this species also occurs in fresh waters, it has been listed by WRC as an Special Concern species.)

NC NHP lists of rare invertebrates — other than mollusks and crustaceans — have been derived from multiple sources. Many of these sources are indicated by footnotes after the name of the animal group in this document. These lists have been prepared in consultation with other biologists in North Carolina and in the eastern United States. Because none of the invertebrates — other than mollusks — have been given legal state protection by WRC as Endangered, Threatened, or Special Concern, these species are given a status of Significantly Rare by NC NHP.

Several groups of invertebrates that were considered Significantly Rare in the 1993 edition of *Natural Heritage Program List of the Rare Animal Species of North Carolina* have been moved to the Watch List section of this 1995 edition. Many of these species were included in the *Symposium on Endangered and Threatened Plants and Animals of North Carolina* (1977). NC NHP has received virtually no new information on these species — mainly millipedes and beetles — in recent years and The Nature Conservancy (TNC) has not assigned Global Ranks for these animals. Thus, NC NHP is no longer tracking millipedes, most beetles, marine mollusks, and annelids; however, files on these species are still maintained at the NC NHP office.

On the other hand, several Natural Heritage Programs and TNC have been actively tracking and protecting rare butterflies and moths, grasshoppers, dragonflies and damselflies, and tiger beetles. NC NHP has therefore expanded its list of these groups that are being tracked in its computer database and map files.

LIST FORMAT

Species are grouped by major taxa. The vertebrates are arranged by class, beginning with the most advanced phylogenetically (mammals). Within a given taxa, species are listed alphabetically by scientific name. The following information is presented for each species on the list. "Status" is a word or phrase that indicates the degree of protection (if any), based on rarity, of a species; "rank" is a numerical scale of the rarity of a species, regardless of legal protection.

Scientific Name.

Common Name. For most groups, these names are not standardized.

North Carolina Status. Endangered, Threatened, and Special Concern species of mammals, birds, reptiles, amphibians, freshwater fishes, and freshwater and terrestrial mollusks have legal protection status in North Carolina (Wildlife Resources Commission). In addition to the above categories, the Natural Heritage Program maintains computer and map files on Significantly Rare species, as well as species considered Extirpated. Paper files only are maintained for a few of the above species; these species are indicated by the phrase "not tracking."

| STATUS CODE | STATUS | DEFINITION |
|----------------|-----------------------|--|
| E | Endangered | "Any native or once-native species of wild animal whose continued existence as a viable component of the State's fauna is determined by the Wildlife Resources Commission to be in jeopardy or any species of wild animal determined to be an 'endangered species' pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987). |
| T | Threatened | "Any native or once-native species of wild animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987). |
| SC | Special Concern | "Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commission to require monitoring but which may be taken under regulations adopted under the provisions of this Article." (Article 25 of Chapter 113 of the General Statutes; 1987). |
| SR | Significantly Rare | Any species which has not been listed by the N.C. Wildlife Resources Commission as an Endangered, Threatened, or Special Concern species, but which exists in the state in small numbers and has been determined by the N.C. Natural Heritage Program to need monitoring. (This is a N.C. Natural Heritage Program designation.) Significantly Rare species include "peripheral" species, whereby North Carolina lies at the periphery of the species' range (such as Purple Gallinule). The designation also includes marine and estuarine fishes identified as "Vulnerable" by the N.C. State Museum of Biological Sciences (Ross et al., 1988, <u>Endangered, Threatened, and Rare Fauna of North Carolina. Part II. A Reevaluation of the Marine and Estuarine Fishes</u>). |

| STATUS CODE | STATUS | DEFINITION |
|----------------|------------|---|
| EX | Extirpated | A species which is no longer believed to occur in the state. |
| W | Watch List | Any other species believed to be of conservation concern in the state because of scarcity, declining populations, threats to populations, or inadequacy of information to assess its rarity (see page 45 for a more complete discussion). |
| * | --- | Species is a game animal, and therefore (by law) cannot be listed for State protection as E, T, or SC. |
| # | --- | Species proposed for Endangered status, but not adopted by the Wildlife Resources Commission; species is protected from taking. |
| @ | --- | Species proposed for Special Concern status, but not adopted by the Wildlife Resources Commission; species is protected from taking. |

United States Status. This status is designated by the U.S. Fish and Wildlife Service. Federally listed Endangered and Threatened species are protected under the provisions of the Endangered Species Act of 1973, as amended through the 100th Congress. Unless otherwise noted, definitions are taken from the *Federal Register*, Vol. 56, No. 225, November 21, 1991 (50 CFR Part 17).

| STATUS CODE | STATUS | DEFINITION |
|----------------|--------------|--|
| E | Endangered | A taxon "which is in danger of extinction throughout all or a significant portion of its range" (Endangered Species Act, Section 3). |
| T | Threatened | A taxon "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (Endangered Species Act, Section 3). |
| C1 | Candidate 1 | "Taxa for which the [Fish and Wildlife] Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species. Proposed rules have not yet been issued because this action is precluded at present by other listing activity. [Such proposed rules] are anticipated, however, and the Service encourages other Federal agencies to give consideration to such taxa in environmental planning." |
| C2 | Candidate 2 | "Taxa for which information now in the possession of the [Fish and Wildlife] Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support proposed rules.... Further biological research and field study usually will be necessary to ascertain the status of taxa in this category....The Service hopes that this notice will encourage necessary research on vulnerability, taxonomy, and/or threats for these taxa." |
| C1*, C2* | --- | Candidate taxa, but lacking known occurrences |
| 3A | Candidate 3A | "Taxa for which the [Fish and Wildlife] Service has persuasive evidence of extinction. If rediscovered, such taxa might acquire high priority for listing." |
| 3B | Candidate 3B | "Names that, on the basis of current taxonomic understanding..., do not represent distinct entities meeting the Act's definition of 'species'; it also includes vertebrate populations that do not meet this definition." |
| 3C | Candidate 3C | "Taxa that have proven to be more abundant or widespread than previously believed and/or those that are not subject to any identifiable threat. If further research or changes in habitat indicate a significant decline in any of these taxa, they may be reevaluated for possible inclusion in categories 1 or 2." |
| P_ | Proposed | Species currently proposed, as either endangered or threatened. Species formally proposed receive some protection by law. |

North Carolina Rank. North Carolina ranks are based on the Natural Heritage Program Network of measuring rarity and threat status. This system is widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity at the state level.

| RANK | NUMBER OF EXTANT POPULATIONS | DESCRIPTION |
|------|------------------------------------|---|
| S1 | 1-5 | Critically imperiled in North Carolina because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from North Carolina. |
| S2 | 6-20 | Imperiled in North Carolina because of rarity or because of some factor(s) making it very vulnerable to extirpation from North Carolina. |
| S3 | 21-100 | Rare or uncommon in North Carolina. |
| S4 | 100-1000 | Apparently secure in North Carolina, with many occurrences. |
| S5 | 1000+ | Demonstrably secure in North Carolina and essentially ineradicable under present conditions. |
| SA | 1-? | Accidental or casual; one to several records for North Carolina, but the state is outside the normal range of the species. |
| SH | 0? | Of historical occurrence in North Carolina, perhaps not having been verified in the past 25 years, and suspected to be still extant. |
| SR | -- | Reported from North Carolina, but without persuasive documentation which would provide a basis for either accepting or rejecting the report. |
| SX | 0 | Apparently extirpated from North Carolina. |
| SU | -- | Possibly in peril in North Carolina but status uncertain; need more information. |
| S? | -- | Unranked, or rank uncertain. |
| _B | 1-? | Rank of the breeding population in the state. Used for migratory species only. |
| _N | 1-? | Rank of the non-breeding population in the state. Used for migratory species only. |
| _Z_ | 1-? | Population is not of significant conservation concern. For example, the status "SZN" indicates that the population in the non-breeding seasons (generally in migration or in winter) is transitory, without any regular locales of occurrence whereby the species can be protected. Where a number is listed with the "B" or "N" modifier, there are definable locales of occurrence that can be identified for protection. |

Global Rank. Similar to North Carolina ranks, global ranks are assigned by a consensus of scientific experts, the individual natural heritage programs, and the Natural Heritage Network. Global ranks apply to the status of a species throughout its range, and are based on data on the species' status rangewide. This system is widely used by other agencies and organizations, as the best available scientific and objective assessment of a species' rarity throughout its range.

| RANK | NUMBER OF EXTANT POPULATIONS | DESCRIPTION |
|------|------------------------------------|--|
| G1 | 1-5 | Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. |
| G2 | 6-20 | Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction throughout its range. |
| G3 | 21-100 | Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single physiographic region) or because of other factors making it vulnerable to extinction throughout its range. |
| G4 | 100-1000 | Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery. |
| G5 | 1000+ | Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery. |
| GH | 0? | Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered. |
| GX | 0 | Believed to be extinct throughout its range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered. |
| GU | -- | Possibly in peril range-wide, but status uncertain; more information is needed. |
| G? | -- | Unranked, or rank uncertain. |
| G_Q | -- | Questionable taxonomic assignment. |
| T_ | -- | The rank of a subspecies or variety. As an example, G4T1 would apply to a subspecies of a species with an overall rank of G4, but the subspecies warranting a rank of G1. |

Physiographic Province. The provinces in which the animal is known to occur are indicated. This should not be regarded as the only province(s) of the state in which the species could occur; our knowledge of the fauna of North Carolina, especially the invertebrates, is still very imperfect. The provinces are abbreviated as follows:

| | | |
|---|---------------|--|
| M | Mountains | All parts of North Carolina west of the foot of the Blue Ridge Escarpment. |
| P | Piedmont | All parts of North Carolina east of the foot of the Blue Ridge Escarpment and west of the Fall Line, including outlying "foothill" ranges, such as the Brushy, Uwharrie, and Sauratown mountains. |
| C | Coastal Plain | All parts of North Carolina east of the Fall Line (including the Sandhills), but excluding the portions associated with tidal water (ocean, sounds, barrier islands, and mainland brackish or salt marshes). |
| T | Tidewater | That part of the state associated with tidal water, such as the ocean and barrier islands, sounds, estuaries, and mainland brackish or salt marshes. |

Habitat. The known, or the most typical, habitats are described briefly; as with provinces, these should not be regarded as the only possible habitats of the species in the state.

STATUS OF ANIMAL TAXA ON NHP RARE ANIMAL LIST¹
(as of March 31, 1995)

| Group | N.C. Status | | | | U.S. Status ² | | |
|---------------------------|------------------|----|-----|-----|--------------------------|---|-----|
| | E | T | SC | SR | E | T | C2 |
| Mammals | 7 | 2 | 11 | 7 | 7 | 1 | 7 |
| Birds | 9 | 2 | 14 | 28 | 8 | 1 | 8 |
| Reptiles | 3 | 4 | 8 | 6 | 3 | 3 | 5 |
| Amphibians | 1 | 2 | 13 | 4 | 0 | 0 | 5 |
| Freshwater Fishes | 9 | 11 | 30 | 12 | 2 | 2 | 10 |
| Saltwater Fishes | (1) ³ | 0 | (1) | 0 | (1) | 0 | 0 |
| Mollusks | 14 | 22 | 34 | 10 | 5 | 1 | 21 |
| Crustaceans | 0 | 0 | 0 | 19 | 0 | 0 | 19 |
| Dragonflies | 0 | 0 | 0 | 39 | 0 | 0 | 9 |
| Moths | 0 | 0 | 0 | 65 | 0 | 0 | 8 |
| Butterflies | 0 | 0 | 0 | 42 | 1 | 0 | 6 |
| Other Invertebrate Groups | 0 | 0 | 0 | 52 | 2 | 0 | 11 |
| Totals | 43 | 43 | 110 | 284 | 28 | 8 | 109 |

¹ For names and definitions of statuses, see pages 3-5. Numbers in the table indicate number of taxa — generally species — for each group and status. Because many taxa have both an N.C. and a U.S. status, totals cannot be added across a complete line.

² Space on the table does not allow for all possible U.S. Status categories. Excluded are taxa with statuses of "PE", "PT", "C1", "3A", "3B", and "3C."

³ Taxa in parentheses are also included in the Freshwater Fishes totals and are not included in the Totals at the bottom of the table.

NUMBER OF ANIMAL SPECIES IN NORTH CAROLINA⁴
(as of March 31, 1995)

| Group | Total # Species ⁵ | # Species – State Protected (E,T,SC) | # Species – Rare List (E,T,SC, SR,Other) | % on State Prot. List | % on Rare List |
|---|---------------------------------|---|---|--------------------------|-------------------|
| Mammals | 120 | 19 | 26 | 16 | 22 |
| Birds | 200 (420) ⁶ | 25 | 53 | 12 | 26 |
| Reptiles | 70 | 15 | 20 | 21 | 28 |
| Amphibians | 80 | 16 | 20 | 20 | 25 |
| Freshwater Fishes | 245 | 48 | 58 | 20 | 24 |
| Freshwater Bivalves | 60 | 33 | 40 | 55 | 67 |
| Freshwater and Terrestrial Gastropods | 250 | 36 | 40 | 14 | 16 |
| Crayfish | 35 | 0 | 5 | 0 | 14 |
| Dragonflies | 135 | 0 | 39 | 0 | 29 |
| Butterflies | 160 | 0 | 42 | 0 | 26 |
| Macro-moths ⁷ | 1000+ | 0 | 65 | 0 | 6.5 |

⁴ This table includes only selected animal groups, particularly those with species totals that are reasonably known.

⁵ The species totals are approximate numbers, generally rounded to the nearest five.

⁶ The number in parentheses is the total number reported in the state; the smaller number is the estimated number of breeding species, which is used in the calculations of the percentages.

⁷ The "macro-moths" represent more than half of the entire moth fauna and are composed of a closely related group of families containing species predominantly of medium to large body size.

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 11

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---|--------|------|---------|-----------------|
| | | N.C. | U.S. | N.C. | Global |
| MAMMALS | | | | | |
| Canis rufus CM: swamps, pocosins, extensive forests | Red Wolf | E | E | S1 | G1 ⁸ |
| Condylura cristata pop. 1 C: moist meadows, bogs, swamps, bottomlands [Coastal Plain population is SC; mountain population not of concern] | Star-nosed Mole [Coastal Plain population] | SC | | S2 | G5T2Q |
| Corynorhinus rafinesquii MC: roosts in old buildings, caves, and mines, usually near water | Rafinesque's Big-eared Bat | SC | C2 | S3 | G3G4 |
| Corynorhinus townsendii virginianus M: roosts in caves (and rarely in mines), especially in limestone areas | Virginia Big-eared Bat | E | E | S1 | G4T2 |
| Felis concolor cougar MPC: extensive forests, remote areas | Eastern Cougar (Panther, Mountain Lion) | E | E | SH | G4TH |
| Glaucomys sabrinus coloratus M: high elevation forests, mainly spruce-fir | Carolina Northern Flying Squirrel | E | E | S1 | G5T1 |
| Microsorex (see Sorex) | | | | | |
| Microtus chrotorrhinus carolinensis M: rocky areas at high elevations, forests or fields | Southern Rock Vole | SC | C2 | S2 | G5T3 |
| Mustela nivalis M: fields and forests, mostly at high elevations | Least Weasel | SR | | S2 | G5 |
| Myotis austroriparius CP: roosts in buildings, hollow trees; forages near water | Southeastern Myotis | SC | C2 | S2? | G4 |
| Myotis grisescens M: roosts in caves; forages mainly over open water | Gray Myotis | E | E | SA | G2G3 |
| Myotis leibii M: roosts in hollow trees (warmer months), in caves and mines (winter) | Eastern Small-footed Myotis | SC | C2 | SUB,S2N | G3 |
| Myotis septentrionalis (= M. keenii) MP: roosts in hollow trees and buildings (warmer months), in caves and mines (winter) | Northern Myotis | SC | | SUB,S2N | G4 |
| Myotis sodalis M: roosts in hollow trees or under loose bark (warmer months), in caves (winter) | Indiana Myotis | E | E | SUB,SZN | G2 |
| Neotoma floridana floridana [Coastal Plain race] C: forests, mainly in moist areas | Eastern Woodrat | T | | S1 | G5T5 |

12 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---|--------|------|---------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Neotoma floridana haematoreia MP: rocky places in deciduous or mixed forests, in southern mountains and adjacent Piedmont | Eastern Woodrat (= Southern Appalachian Woodrat) | SC | C2 | S2 | G5T5 |
| Neotoma magister MP: rocky places in deciduous or mixed forests in northern mountains and adjacent Piedmont [formerly N. floridana magister] | Allegheny Woodrat | SC | C2 | S1S2 | G3G4 |
| Peromyscus leucopus easti T: dunes and maritime thickets along coast south to Oregon Inlet | Pungo White-footed Mouse | SR | 3C | S1? | G5T2 |
| Peromyscus polionotus P: sandy, fallow fields near South Carolina line | Oldfield Mouse | SR | | S1 | G5 |
| Plecotus (see Corynorhinus) | | | | | |
| Sciurus niger CPM: open forests, mainly longleaf pine/scrub oak | Eastern Fox Squirrel | SR* | | S3 | G5 |
| Sorex dispar M: high elevation forests with talus or rocky slopes | Long-tailed Shrew | SC | | S2 | G5 |
| Sorex hoyi winnemana (= Microsorex) MC: montane deciduous forests; old fields and forests in northeastern Coastal Plain | Southern Pygmy Shrew | SC | | S2S3 | G5T4 |
| Sorex longirostris fisheri C: woodlands and brushy fields, especially where damp, in lower Coastal Plain | Dismal Swamp Southeastern Shrew | T | T | S2S3 | G5T2 |
| Sorex palustris punctulatus M: stream banks in montane forests | Southern Water Shrew | SC | C2 | S1S2 | G5T3 |
| Sylvilagus aquaticus M: wet woods and floodplains in extreme southwestern mountains | Swamp Rabbit | SR* | | SH | G5 |
| Sylvilagus obscurus M: dense cover of montane woods and thickets | Appalachian Cottontail | SR* | C2 | S3 | G4 |
| Tadarida brasiliensis C: roosts in buildings and other man-made structures | Brazilian Free-tailed Bat | SC | | SUB,S2N | G5 |
| Trichechus manatus T: warm waters of estuaries and river mouths | Manatee | E | E | S1N | G2? |
| Ursus americanus MC: extensive montane forests; pocosins, swamps | Black Bear | SR* | | S3 | G5 |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

| | | | | | |
|--|-------------------------|----|----|----------|----|
| BIRDS | | | | | |
| Accipiter cooperii MPC: forests and woodlands (for nesting) [breeding evidence only] | Cooper's Hawk | SC | | S2B,S3N | G4 |
| Accipiter gentilis M: extensive, remote forests, mainly at high elevations (for nesting) [breeding evidence only] | Northern Goshawk | SR | C2 | SUB,SZN | G4 |
| Accipiter striatus MP: forests and woodlands (for nesting) [breeding evidence only] | Sharp-shinned Hawk | SR | | S2B,S4N | G5 |
| Aegolius acadicus M: spruce-fir forests or mixed hardwood/ spruce forests (for nesting) [breeding season only] | Northern Saw-whet Owl | SC | | S2B,SZN | G5 |
| Aimophila aestivalis CP: open longleaf pine forests, old fields [breeding season only] | Bachman's Sparrow | SC | C2 | S3B,S2N | G3 |
| Ammodramus henslowii C: clearcut pocosins and other damp weedy fields [breeding season only] | Henslow's Sparrow | SR | C2 | S2B,S1N | G4 |
| Anhinga anhinga C: wooded lakes or ponds, or open swamps (for nesting) [breeding evidence only] | Anhinga | SR | | S2B,SZN | G5 |
| Aquila chrysaetos MC: extensive open country; formerly nested on cliffs [regular wintering or summering sites] | Golden Eagle | SR | | SXB?,SZN | G4 |
| Botaurus lentiginosus CT: fresh or brackish marshes [breeding season only] | American Bittern | SR | | S1B,S3N | G4 |
| Campephilus principalis C: swamps with mature timber [not tracking; presumed extirpated in USA] | Ivory-billed Woodpecker | E | E | SX | G1 |
| Catharus guttatus M: spruce-fir forests (for nesting) [breeding season only] | Hermit Thrush | SR | | S1B,S5N | G5 |
| Charadrius melodus T: ocean beaches and island-end flats [breeding evidence only] | Piping Plover | T | T | S2B,S2N | G3 |
| Chondestes grammacus C: barren, sandy fields with scattered saplings in the sandhills region [breeding season only] | Lark Sparrow | SR | | S1B,SZN | G5 |
| Circus cyaneus T: extensive brackish marshes (for nesting) [breeding evidence only] | Northern Harrier | SR | | S1B,S4N | G5 |

14 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|------------------------|--------|------|---------|--------|
| | | N.C. | U.S. | N.C. | Global |
| <i>Coccyzus erythrophthalmus</i> M: deciduous forests, mainly at higher elevations [breeding season and habitat only] | Black-billed Cuckoo | SR | | S2B,SZN | G5 |
| <i>Columbina passerina</i> T: dunes, sandy fields, margins of maritime woods and thickets [breeding season only] | Common Ground-Dove | SR | | SHB,SZN | G5 |
| <i>Contopus borealis</i> M: montane conifer forests (mainly spruce-fir) with openings or dead trees [breeding season only] | Olive-sided Flycatcher | SC | C2 | SUB,SZN | G5 |
| <i>Coragyps atratus</i> MPC: forested areas for nesting; forests or open country for foraging [roosting and nesting sites only] | Black Vulture | SC | | S3 | G5 |
| <i>Corvus corax</i> MP: cliffs for nesting; forests or fields (mainly at high elevations) for foraging [breeding evidence only] | Common Raven | SR | | S3 | G5 |
| <i>Coturnicops noveboracensis</i> TC: brackish or fresh marshes, wet fields [winter season only] | Yellow Rail | SR | | S2N | G4 |
| <i>Dendroica cerulea</i> MC: mature hardwood forests; steep slopes and coves in mountains, natural levees in Coastal Plain [breeding season only] | Cerulean Warbler | SR | C2 | S3B,SZN | G4 |
| <i>Dendroica kirtlandii</i> PC: [not tracking; a casual or accidental migrant] | Kirtland's Warbler | E | E | SA | G1 |
| <i>Dendroica magnolia</i> M: spruce-fir forests, especially in immature stands [breeding season only] | Magnolia Warbler | SR | | S1B,SZN | G5 |
| <i>Egretta caerulea</i> T: forests or thickets on maritime islands [breeding sites only] | Little Blue Heron | SC | | S3B,S3N | G5 |
| <i>Egretta thula</i> T: forests or thickets on maritime islands [breeding sites only] | Snowy Egret | SC | | S3B,S3N | G5 |
| <i>Egretta tricolor</i> T: forests or thickets on maritime islands [breeding sites only] | Tricolored Heron | SC | | S3B,S3N | G5 |
| <i>Empidonax alnorum</i> M: high elevation shrub/sapling thicket [breeding season only] | Alder Flycatcher | SR | | S2B,SZN | G5 |
| <i>Falco peregrinus</i> MT: cliffs (for nesting); coastal ponds and mudflats (for foraging in winter) [nesting evidence; regular wintering sites] | Peregrine Falcon | E | E | S1B,S2N | G4 |

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 15

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---------------------------|--------|------|---------|----------|
| | | N.C. | U.S. | N.C. | Global |
| <i>Haliaeetus leucocephalus</i> PCT: mature forests near large bodies of water (for nesting); lakes and sounds [nesting sites; regular non-breeding sites] | Bald Eagle | E | E,PT | S1B,S2N | G4 |
| <i>Himantopus mexicanus</i> T: fresh or brackish ponds and impoundments [breeding sites only] | Black-necked Stilt | SR | | S2B | G5 |
| <i>Ictinia mississippiensis</i> C: mature, extensive bottomland forests, mainly in Roanoke River floodplain [regular summer locations only] | Mississippi Kite | SR | | S1B | G5 |
| <i>Lanius ludovicianus ludvicianus</i> CP: fields and pastures [breeding season only] | Loggerhead Shrike | SC | 3C | S3B,S3N | G4G5T4T5 |
| <i>Lanius ludovicianus migrans</i> M: fields and pastures [breeding season only] | Migrant Loggerhead Shrike | SC | C2 | SUB,SUN | G4G5T3 |
| <i>Laterallus jamaicensis</i> TCP: brackish marshes, rarely fresh marshes [breeding season only] | Black Rail | SR | C2 | S3B,S2N | G4? |
| <i>Mycteria americana</i> T: fresh or brackish ponds (for foraging) [regular non-breeding sites] | Wood Stork | E | E | S1N | G4 |
| <i>Parus atricapillus</i> M: high elevation forests, mainly spruce-fir [breeding season only] | Black-capped Chickadee | SC | | S3 | G5 |
| <i>Passerculus sandwichensis</i> M: grassy fields and pastures [breeding season only] | Savannah Sparrow | SR | | S1B,S5N | G5 |
| <i>Passerina ciris ciris</i> T: maritime shrub thickets and forest edges [breeding season only] | Eastern Painted Bunting | SR | C2 | S3B | G5TU |
| <i>Pelecanus occidentalis</i> T: maritime islands [breeding sites only] | Brown Pelican | SC | | S3B,S4N | G4 |
| <i>Phalacrocorax auritus</i> CP: lakes with scattered trees for nesting [breeding sites only] | Double-crested Cormorant | SR | | S1B,S5N | G5 |
| <i>Picoides borealis</i> CP: mature open pine forests, mainly in longleaf pine [breeding evidence only] | Red-cockaded Woodpecker | E | E | S2 | G2 |
| <i>Plegadis falcinellus</i> T: forests or thickets on maritime islands [breeding sites only] | Glossy Ibis | SC | | S2B,S1N | G5 |
| <i>Porphyryla martinica</i> C: freshwater ponds with floating vegetation [breeding sites only] | Purple Gallinule | SR | | SHB | G5 |

16 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---------------------------|--------|------|---------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Regulus satrapa M: spruce-fir forests; hardwood forests mixed with spruce or hemlock [breeding season only] | Golden-crowned Kinglet | SC | | S3B,S5N | G5 |
| Riparia riparia MP: high, vertical banks for nesting [breeding sites only] | Bank Swallow | SR | | SUB,SZN | G5 |
| Rynchops niger T: sand flats on maritime islands [breeding sites only] | Black Skimmer | SC | | S3B,S3N | G5 |
| Sphyrapicus varius M: mature, open hardwoods with scattered dead trees [breeding season only] | Yellow-bellied Sapsucker | SR | | S2B,S5N | G5 |
| Sterna caspia T: sand flats on maritime islands [breeding sites only] | Caspian Tern | SR | | S1B,S2N | G5 |
| Sterna dougallii T: sand flats on maritime islands [breeding evidence only] | Roseate Tern | E | E | SAB,S1N | G3 |
| Sterna nilotica T: sand flats on maritime islands [breeding sites only] | Gull-billed Tern | T | | S3B,SZN | G5 |
| Thryomanes bewickii altus M: woodland borders or openings, farmlands or brushy fields, at high elevations [breeding season only] | Appalachian Bewick's Wren | E | C2 | SHB,SZN | G5T? |
| Vermivora bachmanii P: [not tracking; accidental visitor] | Bachman's Warbler | E | E | SA | G1 |
| Vermivora pinus M: low elevation brushy fields and thickets [breeding season only] | Blue-winged Warbler | SR | | S2B,SZN | G5 |
| Vireo gilvus M: groves of hardwoods along rivers and streams [breeding season only] | Warbling Vireo | SR | | S2B,SZN | G5 |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|--|--------|-------------------------|---------|--------|
| | | N.C. | U.S. | N.C. | Global |
| REPTILES | | | | | |
| Alligator mississippiensis CT: fresh to slightly brackish lakes, ponds, rivers, and marshes | American Alligator | T | T (S/A) ⁹ | S3 | G5 |
| Apalone spinifera spinifera M: large streams in the French Broad system | Eastern Spiny Softshell | SC | | S1 | G5T5 |
| Caretta caretta T: nests on beaches; forages in ocean and sounds | Loggerhead | T | T | S2B,S2N | G3 |
| Chelonia mydas T: nests on beaches; forages in ocean and sounds | Green Turtle | T | T | S1B,SZN | G3 |
| Clemmys muhlenbergii MP: bogs, wet pastures, wet thickets | Bog Turtle | T | C2 | S2 | G3 |
| Crotalus adamanteus C: pine flatwoods, savannas, pine-oak sandhills | Eastern Diamondback Rattlesnake | SR# | | S1 | G5 |
| Deirochelys reticularia C: quiet waters of ponds, ditches, and sluggish streams | Chicken Turtle | SR | | S3 | G5 |
| Dermochelys coriacea T: oceans, rarely in sounds | Leatherback | E | E | SZN | G3 |
| Eretmochelys imbricata T: oceans, very rarely in sounds | Hawksbill | E | E | SZN | G3 |
| Heterodon simus C: sandy woods, particularly pine-oak sandhills | Southern Hognose Snake | SR | C2 | S3 | G4G5 |
| Lampropeltis getula sticticeps T: maritime forests, thickets, and grasslands on the Outer Banks | Outer Banks Kingsnake | SC | | S2 | G5T2Q |
| Lepidochelys kempii T: ocean and sounds | Atlantic Ridley | E | E | SAB,SZN | G1 |
| Malaclemys terrapin centrata T: salt or brackish marshes; estuaries; southern half of the coast | Carolina Diamondback Terrapin | SC | | S3 | G5T4 |
| Malaclemys terrapin terrapin T: salt or brackish marshes; estuaries; northern half of the coast | Northern Diamondback Terrapin ¹⁰ | SC | C2 | S3 | G5T5 |
| Micrurus fulvius C: pine-oak sandhills, sandy flatwoods, maritime forests | Eastern Coral Snake | SR# | | S1 | G5 |
| Nerodia sipedon williamengelsi T: salt or brackish marshes | Carolina Salt Marsh Snake | SC | | S3 | G5T3 |

⁹ T(S/A) = Threatened due to Similarity of Appearance.

¹⁰ The N.C. list has *Malaclemys terrapin* as SC — no breakdown into subspecies.

18 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|--|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Opheodrys vernalis M: fields and grassy meadows | Smooth Green Snake | SC | | SH | G5 |
| Ophisaurus mimicus C: pine flatwoods, savannas, pine/oak sandhills | Mimic Glass Lizard | SC | C2 | S2 | G3 |
| Pituophis melanoleucus melanoleucus CM: dry and sandy woods, mainly in pine/oak sandhills | Northern Pine Snake | SC | C2 | S3 | G5T4 |
| Sistrurus miliarius CP: pine flatwoods, pine/oak sandhills, other pine/oak forests | Pigmy Rattlesnake | SR@ | | S3 | G5 |
| Sternotherus minor [S. m. peltifer] M: streams and rivers in Mississippi drainage | Loggerhead Musk Turtle [Stripeneck Musk Turtle] | SC | | S1 | G5 |

AMPHIBIANS

| | | | | | |
|--|------------------------------------|----|----|------|-------|
| Ambystoma talpoideum MP: breeds in fish-free semipermanent woodland ponds; forages in adjacent woodlands | Mole Salamander | SC | | S2 | G5 |
| Ambystoma tigrinum C: breeds in fish-free semipermanent ponds; forages in adjacent woods, usually sandy pinewoods | Tiger Salamander | T | | S2 | G5 |
| Aneides aeneus M: damp, shaded crevices of cliffs or rock outcrops in deciduous forests (southern mountains) | Green Salamander | E | C2 | S1S2 | G4 |
| Cryptobranchus alleganiensis M: large and clear fast-flowing streams | Hellbender | SC | C2 | S3 | G4 |
| Desmognathus aeneus M: seeps, springs, or streams in forests in extreme southwestern counties | Seepage Salamander | SR | C2 | S3 | G4 |
| Desmognathus santeetlah M: stream headwaters and seepage areas; southwestern mountains | Santeetlah Dusky Salamander | SR | | S2S3 | G3Q |
| Eurycea junaluska M: forests near seeps and streams in the Cheoah River system | Junaluska Salamander | SC | C2 | S2 | G2Q |
| Eurycea longicauda longicauda M: moist woods and floodplains | Longtail Salamander | SC | | S2 | G5T5 |
| Eurycea quadridigitata (part) C: pocosins, bay forests, flatwoods, savannas | Dwarf Salamander (silver morph) | SC | | S2 | G5T?Q |
| Hemidactylium scutatum MPC: pools, bogs, and other wetlands in hardwood forests | Four-toed Salamander | SC | | S3 | G5 |
| Hyla andersonii C: pocosins, bay forests, boggy areas | Pine Barrens Treefrog | SR | | S3 | G4 |

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 19

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|----------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Necturus lewisi PC: rivers and large streams in Neuse and Tar drainages (endemic to North Carolina) | Neuse River Waterdog | SC | | S3 | G3 |
| Necturus maculosus M: rivers and large streams (French Broad drainage) | Mudpuppy | SC | | S1 | G5 |
| Plethodon aureolus M: forests in the Unicoi Mountains | Tellico Salamander | SR | | S2 | G2G3Q |
| Plethodon dorsalis M: moist areas of talus slopes or rock outcrops in hardwood forests | Zigzag Salamander | SC | | S1 | G5 |
| Plethodon wehrlei P: upland forests (low mountains near Virginia border) | Wehrle's Salamander | T | | S1 | G5 |
| Plethodon welleri M: high elevation forests in northern mountains, mainly in spruce-fir | Weller's Salamander | SC | | S2 | G4 |
| Pseudacris brachyphona M: forests near temporary pools or ponds, in extreme southwestern mountains | Mountain Chorus Frog | SC | | SH | G5 |
| Rana capito capito C: breeds in temporary fish-free pools; forages in sandy woods, especially pine-oak sandhills | Carolina Gopher Frog | SC | C2 | S2 | G4T3 |
| Rana heckscheri C: river floodplains, such as pools or borrow pit ponds | River Frog | SC | | SH | G5 |

FRESHWATER FISHES

| | | | | | |
|--|--------------------------------------|-----|----|----|------|
| Acipenser brevirostrum (see listing under Marine and Estuarine Fishes) | | | | | |
| Acipenser fulvescens M: large rivers of Tennessee drainages | Lake Sturgeon | SC | C2 | SX | G3 |
| Acipenser oxyrhynchus (see listing under Marine and Estuarine Fishes) | | | | | |
| Ambloplites cavifrons PC: streams in Neuse and Tar systems | Roanoke Bass | SR* | | S3 | G3 |
| Aplodinotus grunniens M: French Broad River | Freshwater Drum | T | | S1 | G5 |
| Carpionodes carpio M: French Broad River | River Carpsucker | SC | | SH | G5 |
| Carpionodes velifer PC: Catawba, Pee Dee, and Cape Fear rivers | Highfin Carpsucker | SC | | S2 | G4G5 |
| Clinostomus funduloides subsp. M: Little Tennessee drainage | Little Tennessee River Rosyside Dace | SC | | S2 | G5T2 |
| Cottus carolinae M: French Broad River system | Banded Sculpin | T | | S1 | G5 |

20 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|--|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Cyprinella monacha M: Little Tennessee River; formerly in French Broad drainage | Spotfin Chub | T | T | S1 | G2 |
| Cyprinella zanema PC: Catawba, Broad, Cape Fear, and Lumber drainages | Santee Chub | | | S3 | G3? |
| Cyprinella zanema pop. 1 | Santee Chub - Piedmont population | SR | | S3 | G3?T3 |
| Cyprinella zanema pop. 2 | Santee Chub - Coastal Plain population | SC | | S2 | G3?T2 |
| Elassoma boehlkei C: streams and canals in Waccamaw drainage | Carolina Pygmy Sunfish | T | C2 | S1S2 | G2 |
| Etheostoma acuticeps M: streams in Nolichucky system (Toe and Cane rivers) | Sharphead Darter | T | | S1 | G3G4 |
| Etheostoma collis P: streams in the Piedmont | Carolina Darter | SC | | S3 | G3 |
| Etheostoma inscriptum M: streams of Savannah drainage | Turquoise Darter | SC | | S1 | G4 |
| Etheostoma jessiae M: streams in Mills River system | Blueside Darter | SC | | SH | G4Q |
| Etheostoma kanawhae M: New drainage | Kanawha Darter | SR | | S2S3 | G2 |
| Etheostoma maculatum (= E. sanguifluum) (see Etheostoma vulneratum) | | | | | |
| Etheostoma mariae C: streams of Lumber drainage, mainly in the sandhills; perhaps in adjacent Pee Dee drainage | Pinewoods Darter | SC | | S3 | G3 |
| Etheostoma perlongum C: Lake Waccamaw (endemic to North Carolina) | Waccamaw Darter | T | 3B | S1 | G1Q |
| Etheostoma podostemone P: large streams in Dan River system | Riverweed Darter | SC | | S2 | G3 |
| Etheostoma simoterum M: streams of French Broad drainage (formerly) | Snubnose Darter | SC | | SRSH | G5 |
| Etheostoma vulneratum M: streams of Little Tennessee system; perhaps extirpated from French Broad system | Wounded Darter | SC | | S2 | G3 |
| Exoglossum laurae M: New drainage | Tonguetied Minnow | SR | | S2 | G4 |
| Exoglossum maxillingua P: streams of Dan River system | Cutlips Minnow | E | | S1 | G5 |
| Fundulus waccamensis C: large natural lakes (Lakes Waccamaw and Phelps) (endemic to North Carolina) | Waccamaw Killifish | SC | C2 | S1 | G1 |

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 21

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Heterandria formosa C: streams and lakes near Wilmington | Least Killifish | SC | | S1 | G5 |
| Hiodon tergisus M: French Broad River | Mooneye | SC | | S1 | G5 |
| Hybopsis monacha (see Cyprinella monacha) | | | | | |
| Hybopsis rubrifrons (see Notropis rubescens) | | | | | |
| Hybopsis zanema (see Cyprinella zanema) | | | | | |
| Hybopsis, new species [Cape Fear Chub] (merged with Cyprinella zanema) | | | | | |
| Hypentelium roanokense P: Dan drainage | Roanoke Hog Sucker | SR | | S3 | G3? |
| Ichthyomyzon bdellium M: French Broad drainage | Ohio Lamprey | SR | | S1 | G3G4 |
| Lampetra aepyptera CP: Tar and Neuse drainages | Least Brook Lamprey | SC | | S2 | G5 |
| Lampetra appendix M: French Broad drainage | American Brook Lamprey | T | | S1 | G5 |
| Lepomis megalotis M: French Broad drainage | Longear Sunfish | SR* | | SH | G5 |
| Lucania goodei C: stream in Wilmington area | Bluefin Killifish | SC | | S1 | G5 |
| Luxilus chrysocephalus M: Cane River system | Striped Shiner | T | | S1 | G5 |
| Menidia extensa C: Lake Waccamaw (endemic to North Carolina) | Waccamaw Silverside | T | T | S1 | G1 |
| Micropterus coosae M: Savannah drainage | Redeye Bass | SR | | S1 | G5 |
| Moxostoma ariommum P: Dan drainage | Bigeye Jumprock | SC | | S2 | G2 |
| Moxostoma carinatum [undescribed form] (=M. robustum) | | | | | |
| Moxostoma hamiltoni (see Thoburnia) | | | | | |
| Moxostoma robustum P: Pee Dee River | Robust Redhorse | SC | C2 | S1 | G_ |
| Notropis bifrenatus C: stream near lower Neuse River | Bridle Shiner | SC | | SH | G5 |
| Notropis chrysocephalus (see Luxilus) | | | | | |
| Notropis lutipinnis MP: Savannah, Little Tennessee, and Broad drainages [only the Savannah and Little Tennessee drainages are listed as SC] | Yellowfin Shiner | SC | | S3 | G4 |
| Notropis mekistocholas P: Cape Fear drainage (endemic to North Carolina) | Cape Fear Shiner | E | E | S1 | G1 |
| Notropis rubescens M: Savannah drainage | Rosyface Chub | T | | S1 | G4 |
| Noturus eleutherus M: French Broad drainage | Mountain Madtom | SC | | SH | G5 |

22 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|---------------------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Noturus flavus M: Nolichucky, French Broad, and Little Tennessee drainages | Stonecat | E | | S1 | G5 |
| Noturus furiosus CP: Tar and Neuse drainages (endemic to North Carolina) | Carolina Madtom | | | S3 | G3 |
| Noturus furiosus pop. 1 CP: Neuse River drainage (endemic to North Carolina) | Carolina Madtom - Neuse population | SC | | S2 | G3T2Q |
| Noturus furiosus pop. 2 CP: Tar River drainages (endemic to North Carolina) | Carolina Madtom - Tar population | SR | | S2 | G3T2Q |
| Noturus gilberti P: Dan drainage | Orangefin Madtom | E | C2 | S1 | G2 |
| Noturus insignis, new subspecies P: Dan River | Spotted Margined Madtom | SR | C2 | SR | G5T_ |
| Noturus, new species C: Cape Fear, Waccamaw, and Lumber drainages | Broadtail Madtom | SC | | S2 | G2 |
| Percina aurantiaca M: Tennessee drainages | Tangerine Darter | SR | | S3 | G3G4 |
| Percina burtoni M: South Toe River; formerly in French Broad drainage | Blotchside Darter | E | | S1 | G2 |
| Percina caprodes M: Tennessee drainages | Logperch | T | | S1 | G5 |
| Percina macrocephala M: French Broad River; probably extirpated | Longhead Darter | SC | C2 | SX | G3 |
| Percina oxyrhynchus M: New drainage | Sharpnose Darter | SC | | S1 | G4 |
| Percina sciera M: French Broad drainage | Dusky Darter | E | | SH | G5 |
| Percina squamata M: Tennessee drainages | Olive Darter | SC | C2 | S2S3 | G3 |
| Phenacobius teretulus M: New drainage | Kanawha Minnow | SC | C2 | S2S3 | G3 |
| Polyodon spathula M: French Broad River | Paddlefish | E | C2 | S1? | G4 |
| Semotilus lumbee C: streams in the sandhills | Sandhills Chub | SC | | S3 | G3 |
| Stizostedion canadense M: French Broad and Hiwassee rivers | Sauger | SR* | | S2 | G5 |
| Thoburnia hamiltoni P: Dan drainage | Rustyside Sucker | E | | S1 | G2 |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

MARINE AND ESTUARINE FISHES

| | | | | | |
|---|--------------------|----|---|----|----|
| Acipenser brevirostrum TC: brackish water of large rivers and estuaries; spawns in freshwater areas | Shortnose Sturgeon | E | E | S1 | G3 |
| Acipenser oxyrhynchus TC: coastal waters, estuaries, large rivers | Atlantic Sturgeon | SC | | S3 | G3 |
| Eleotris pisonis T: fresh to brackish ponds, river mouths, and estuaries | Spinycheek Sleeper | SR | | S2 | G5 |
| Evorthodus lyricus T: shallow tidal water, especially pools in salt marshes | Lyre Goby | SR | | S2 | GU |
| Gobionellus stigmaticus T: shallow salt or brackish water | Marked Goby | SR | | S2 | G? |
| Hypsoblennius ionthas T: shallow bays, estuaries, tidal creeks | Freckled Blenny | SR | | S2 | GU |
| Microphis brachyurus T: warm fresh to brackish water | Opossum Pipefish | SR | | S1 | G5 |
| Oostethus brachyurus (see Microphis) | | | | | |

MOLLUSKS -- FRESHWATER BIVALVES¹¹

| | | | | | |
|---|---------------------|----|----|----|-----|
| Alasmidonta heterodon PC: Tar and Neuse drainages, mainly near Fall Line | Dwarf Wedgemussel | E | E | S1 | G1 |
| Alasmidonta raveneliana M: Tennessee drainages; only in Little Tennessee and Nolichucky drainages at present | Appalachian Elktoe | E | E | S1 | G1 |
| Alasmidonta robusta P: Long Creek in Mecklenburg County (endemic to North Carolina; now believed extinct) | Carolina Elktoe | EX | 3A | SX | GX |
| Alasmidonta undulata PC: most river systems in Piedmont and Coastal Plain | Triangle Floater | T | | S2 | G4 |
| Alasmidonta varicosa PM: many Piedmont systems and along Blue Ridge escarpment of Catawba River system | Brook Floater | T | C2 | S2 | G3 |
| Alasmidonta viridis M: Little Tennessee River | Slippershell Mussel | E | | S1 | G4 |
| Alasmidonta, new species? (sp. 1) P: upper Yadkin River system (Davie County) | a bivalve | SR | | SU | G1Q |

¹¹ Global ranks in parentheses are those suggested by the N.C. Scientific Council on Freshwater and Terrestrial Mollusks and are not The Nature Conservancy's assigned ranks.

24 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|-----------------------------|--------|------|------|-------------|
| | | N.C. | U.S. | N.C. | Global |
| Anodonta couperiana C: Bladen County; formerly in Greenfield Lake | Barrel Floater | E | | S1 | G3G4 |
| Anodonta implicata C: Chowan, Meherrin, and lower Roanoke rivers | Alewite Floater | SC | | S2 | G5 (G4) |
| Elliptio dilatata M: Little Tennessee and New rivers | Spike | SC | | S2 | G5 (G3) |
| Elliptio folliculata C: lower Coastal Plain, mainly in Lake Waccamaw | Pod Lance | SC | | S2 | G3Q |
| Elliptio lanceolata PC: Tar and Neuse systems, mainly near the Fall Line | Yellow Lance | T | C2 | S2 | G3 |
| Elliptio marsupiobesa [probably conspecific with E. icterina] C: Cape Fear River in Cumberland and Bladen counties (endemic to North Carolina) | Cape Fear Spike | T | 3B | SU | G3Q |
| Elliptio roanokensis PC: Neuse and Tar river systems | Roanoke Slabshell | T | | S1 | G2Q |
| Elliptio steinstansana PC: Tar River drainage, primarily Swift Creek (endemic to North Carolina) | Tar Spinymussel | E | E | S1 | G1 |
| Elliptio waccamawensis C: Lake Waccamaw and vicinity (endemic to North Carolina; possibly in adjacent South Carolina) | Waccamaw Spike | T | C2 | S1 | G1G2Q |
| Elliptio, new species? (sp. 4) P: Deep River system (Chatham/Lee county line) | a bivalve | SR | | SU | G1Q |
| Elliptio, new species? (sp. 5) C: Lake Waccamaw (endemic to North Carolina) | Waccamaw Lance Pearlymussel | SR | C2 | S1S3 | G1G3Q |
| Epioblasma capsaeformis M: French Broad River (formerly reported) | Oyster Mussel | EX | C2 | SX | G2 |
| Fusconaia barnesiana M: Little Tennessee River | Tennessee Pigtoe | E | | S1 | G2G3 |
| Fusconaia masoni CP: most Atlantic drainages, in lower Piedmont and upper Coastal Plain; also in Black River in lower Coastal Plain | Atlantic Pigtoe | T | C2 | S1 | G2 |
| Fusconaia subrotunda M: French Broad River (formerly reported) | Long-solid | EX | | SX | G4 |
| Lampsilis cariosa PC: a number of river systems; mainly near the Fall Line | Yellow Lampmussel | T | C2 | S1S2 | G4 |
| Lampsilis crocata C: Lake Waccamaw and vicinity; possibly Orton Pond | Waccamaw Lampmussel | SC | | S1? | G1Q (GU) |

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 25

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|--------------------------|--------|------|------|------------|
| | | N.C. | U.S. | N.C. | Global |
| <i>Lampsilis fasciola</i> M: French Broad, Pigeon, and Little Tennessee rivers; currently known only in last river | Wavy-rayed Lampmussel | SC | | S1 | G4 |
| <i>Lampsilis fullerkati</i> C: Lake Waccamaw and vicinity (endemic to North Carolina and adjacent South Carolina) | Waccamaw Fatmucket | T | C2 | S1 | G1Q |
| <i>Lampsilis radiata</i> CP: a number of river systems | Eastern Lampmussel | SC | | S1S2 | G5 (G4) |
| <i>Lasmigona decorata</i> P: Catawba and Pee Dee drainages in Union and Mecklenburg counties (endemic to this area and adjacent South Carolina) | Carolina Heelsplitter | E | E | S1 | G1 |
| <i>Lasmigona holstonia</i> M: Mills River; formerly in Valley Creek in Cherokee County | Tennessee Heelsplitter | E | C2 | S1 | G2G3 |
| <i>Lasmigona subviridis</i> CPM: Tar, Neuse, and Cape Fear systems downstate; New and Watauga systems in mountains | Green Floater | E | C2 | S1 | G3 |
| <i>Leptodea ochracea</i> CP: a number of systems, primarily in the Coastal Plain; abundant in Lake Waccamaw | Tidewater Mucket | SC | | S2 | G4 |
| <i>Ligumia nasuta</i> C: Chowan, Roanoke, and Pamlico systems | Eastern Pondmussel | SC | | S2 | G4 (G3) |
| <i>Medionidus conradicus</i> M: French Broad River (formerly reported) | Cumberland Moccasinshell | EX | | SX | G4 |
| <i>Pegias fabula</i> M: Little Tennessee River; formerly in Valley River in Cherokee County | Littlewing Pearlymussel | E | E | S1 | G1 |
| <i>Ptychobranhus fasciolaris</i> M: Tennessee drainages (formerly reported) | Kidneyshell | EX | | SX | G4 |
| <i>Quadrula pustulosa</i> M: Tennessee drainages (formerly reported) | Pimpleback | EX | | SX | G5 |
| <i>Strophitus undulatus</i> P: Tar, Neuse, Cape Fear, and Pee Dee systems, perhaps other systems in Piedmont | Squawfoot | T | | S1S2 | G5 (G4) |
| <i>Toxolasma lividum</i> M: French Broad River (formerly reported) | Purple Lilliput | EX | C2 | SX | G2G3 |
| <i>Toxolasma pullum</i> PC: a number of Atlantic drainages, most numerous in University Lake near Chapel Hill | Savannah Lilliput | T | C2 | S1 | G3 |
| <i>Tritogonia verrucosa</i> M: New River near the Virginia border | Pistolgrip | E | | S1 | G4 |
| <i>Villosa constricta</i> PC: most Atlantic drainages, mainly in lower Piedmont | Notched Rainbow | SR | | S2S3 | G4 |
| <i>Villosa delumbis</i> PC: most Atlantic drainages | Eastern Creekshell | SR | | S3? | G3G4 |

26 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Villosa iris (= V. nebulosa) M: French Broad, Hiwassee, and Little Tennessee rivers; currently only known in the state from the last river | Alabama Rainbow | SC | | S1 | G3 |
| Villosa vanuxemensis M: French Broad and Hiwassee systems | Mountain Creekshell | T | | S1 | G4 |
| Villosa vaughaniana P: Pee Dee system (endemic to North Carolina and adjacent South Carolina) | Carolina Creekshell | SC | | S1 | G3 |

MOLLUSKS -- FRESHWATER GASTROPODS

| | | | | | |
|--|---------------------------|----|----|-----|-------------|
| Amnicola sp. C: Lake Waccamaw and adjacent Big Creek (endemic to North Carolina) | Waccamaw Snail | SC | | S1 | G? (G1Q) |
| Cincinnati sp. 1 C: Lake Waccamaw and adjacent Big Creek (endemic to North Carolina) | Waccamaw Siltsnail | SC | | S1 | G? (G1Q) |
| Ferrissia hendersoni CP: scattered locales in Coastal Plain and Piedmont, but mainly on margins of Carolina bay lakes (apparently endemic to North Carolina) | Blackwater Ancyliid | SC | | S1 | G? (G1) |
| Goniobasis interrupta M: Hiwassee River and tributaries | Knotty Elimia | E | C2 | S1 | G? (G1) |
| Helisoma eucosmium C: Greenfield Lake (formerly), creek in Brunswick County (endemic to North Carolina) | Greenfield Ramshorn Snail | SR | 3A | S1 | G1 |
| Leptoxis dilatata M: New River drainage in Ashe, Alleghany, and Watauga counties | Seep Mudalia | T | | S1 | G? (G3) |
| Leptoxis virgata M?: reported from Hiwassee River, possibly in error | Smooth Mudalia | SR | C2 | SU | G? (G2) |
| Planorbella magnifica C: Orton Pond and pond on Sand Hill Creek; formerly Greenfield Lake (endemic to North Carolina) | Magnificent Rams-horn | E | C2 | S1 | G1 |
| Somatogyrus virginicus P: Eno River | Panhandle Pebblesnail | SR | C2 | S1? | G1G3 |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|------------------------|--------|------|------|----------------|
| | | N.C. | U.S. | N.C. | Global |
| MOLLUSKS -- TERRESTRIAL GASTROPODS | | | | | |
| Catinella avara C: shoreline of Lake Waccamaw | Suboval Ambersnail | T | | S1 | G5 |
| Discus bryanti M: Watauga to Madison counties | Saw-tooth Disc | SC | | S2 | G? (G3) |
| Glyphyalinia clingmani M: Black Mountains of Yancey County endemic to North Carolina) | Fragile Glyph | E | C2 | S1 | G? (G1) |
| Glyphyalinia junaluskana M: southwestern mountains | Dark Glyph | SC | | S2 | G? (G3) |
| Glyphyalinia pentadelphia M: southwestern mountains | Pink Glyph | SC | | S2 | G? (G3) |
| Glyphyalinia vanattai M: Avery, Mitchell, and Yancey counties | Honey Glyph | SC | | S2 | G? (G2) |
| Haplotrema kendeighi M: southwestern mountains | Blue-footed Lancetooth | SC | | S2 | G? (G2) |
| Helicodiscus bonamicus M: Nantahala Gorge vicinity (endemic to this area) | Spiral Coil | SC | | S2 | G? (G2) |
| Helicodiscus fimbriatus M: extreme southwestern corner of the state, in Cherokee and Graham counties | Fringed Coil | SC | | S2 | G? (G3) |
| Helicodiscus triodus M: Madison County | Tallus Coil | SR | | S1? | G2 |
| Mesodon chilhoweensis M: southern half of the mountains | Queen Crater | SC | | S2 | G? (G2) |
| Mesodon clarki M: southwestern mountains | Dwarf Proud Globe | SC | | S2 | G? (G2) |
| Mesodon clarki nantahala M: Nantahala Gorge (endemic to this site) | Noonday Globe | T | T | S1 | G? (G2T1) |
| Mesodon ferrissi M: Great Smoky Mountains and Plott Balsams (endemic to these ranges) | Smokey Mountain Covert | T | | S2 | G? (G2) |
| Mesodon jonesianus M: Newfound Gap area of Great Smoky Mountains National Park (endemic to this area) | Big-tooth Covert | T | | S2 | G? (G2) |
| Mesodon orestes M: Plott Balsam mountains (endemic to this area) | Engraved Covert | T | 3C | S2 | G? (G2) |
| Mesodon subpalliatius M: central mountains (Avery to Haywood counties) | Velvet Covert | SC | | S2 | G? (G2) |
| Mesodon wheatleyi clingmanicus M: Clingmans Dome region of Great Smoky Mountains National Park (endemic to this area) | Clingman Covert | T | C2 | S1 | G4T3T4 (G1) |

28 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|-------------------------|--------|------|------|-------------|
| | | N.C. | U.S. | N.C. | Global |
| Pallifera hemphilli M: high elevation forests, mainly spruce-fir | Black Mantleslug | SC | | S2 | G3 |
| Paravitrea andrewsae M: northern half of the mountains | High Mountain Supercoil | SC | | S2 | G? (G3) |
| Paravitrea clappi M: high elevations in Great Smoky Mountains National Park | Mirey Ridge Supercoil | SC | | S2 | G? (G3) |
| Paravitrea lacteodens M: Graham County, possibly Cherokee County (endemic to this area) | Ramp Cove Supercoil | SC | | S1 | G? (G1Q) |
| Paravitrea lamellidens M: southern half of the mountains | Lamellate Supercoil | SC | | S2 | G? (G3) |
| Paravitrea placentula M: Madison, Mitchell and Swain counties | Glossy Supercoil | SC | | S2 | G3 |
| Paravitrea ternaria M: Madison County (endemic to this county and Unicoi County, Tennessee) | Sculpted Supercoil | T | C2 | S2 | G? (G2) |
| Paravitrea umbilicaris M: extreme southwestern mountains | Open Supercoil | SC | | S2 | G? (G3) |
| Paravitrea varidens M: Mitchell and Yancey counties (endemic to North Carolina and adjacent Tennessee) | Roan Supercoil | T | C2 | S2 | G? (G2) |
| Stenotrema depilatum M: Great Smoky Mountains National Park (essentially endemic to this area) | Great Smoky Slitmouth | SC | | S2 | G? (G2) |
| Triodopsis fulcidens P: southwestern Piedmont (endemic to North Carolina) | Dwarf Threetooth | SC | | S2 | G? (G2) |
| Triodopsis soelneri C: swampy habitats in the extreme southeastern corner of the state (endemic to North Carolina) | Cape Fear Threetooth | T | C2 | S2 | G2 |
| Triodopsis tennesseensis M: Hot Springs vicinity | Budded Threetooth | SR | | S1S3 | G4 |
| Ventridens coelaxis M: northern mountains | Bidentate Dome | SC | | S2 | G3 |
| Ventridens lasmodon M: Madison County | Hollow Dome | SR | | S1S3 | G4 |
| Zonitoides patuloides M: southwestern mountains | Appalachian Gloss | SC | | S2 | G? (G2) |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|----------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| ARACHNIDS ¹² | | | | | |
| Hypochilus coylei M: caves (apparently endemic to southern mountains of North Carolina) | a lampshade spider | SR | | S3? | G3? |
| Hypochilus sheari M: caves (apparently endemic to Buncombe, McDowell, and Yancey counties, NC) | a lampshade spider | SR | | S2S3 | G2G3 |
| Ivesia carolinensis (see Nesticus) | | | | | |
| Microhexura montivaga M: in moss of spruce-fir forests (endemic to North Carolina and adjacent Tennessee) | Spruce-fir Moss Spider | SR | E | S1 | G1 |
| Nesticus brimleyi M: caves (endemic to the vicinity of Bat Cave) | a nesticid spider | SR | | S1? | G1? |
| Nesticus carolinensis M: caves (apparently endemic to Linville Caverns) | Linville Caverns Spider | SR | | S1 | G1? |
| Nesticus cooperi M: caves and along Nantahala River (apparently endemic to Swain County, NC) | Lost Nantahala Cave Spider | SR | C2 | S1 | G1? |
| Nesticus crosbyi M: spruce-fir forests (apparently endemic to Mount Mitchell) | a nesticid spider | SR | | S1? | G1? |
| Nesticus mimus M: rocky areas; known from Grandfather Mountain and Table Rock; also in Virginia | a nesticid spider | SR | | S2? | G2? |
| Nesticus sheari M: on ground in moist or rich forests (apparently endemic to Graham County, NC) | a nesticid spider | SR | | S2? | G2? |
| Nesticus silvanus M: habitat not indicated (apparently endemic to southern mountains of North Carolina) | a nesticid spider | SR | | S2? | G2? |
| Nesticus, new species? (sp. 1) M: habitat not indicated (known only from Jackson and Transylvania counties, NC, and Oconee County, SC) | a nesticid spider | SR | | S2? | G2? |
| Vaejovis carolinianus MP: under shelter of rocks, leaves, and buildings, along southern border of state | Carolina Scorpion | SR | | S2? | G5 |

¹² This arachnid list is a selective one, concentrating on cave and other montane spiders, and is not intended to be a complete list of the rare arachnids in the state.

30 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

| CRUSTACEANS | | | | | |
|--|----------------------------------|----|----|-------|------|
| Acanthocyclops carolinianus P: temporary ponds and pools near Chapel Hill | Carolina Acanthocyclops | SR | | S1? | G? |
| Ascetocythere cosmeta M: symbiotic on crayfish in sub-surface waters of burrows | Grayson Crayfish Ostracod | SR | C2 | S2? | G? |
| Attheyella obatogamensis C: cool waters; in North Carolina only known from White Lake in Bladen County | Obatogamau Attheyella | SR | | S1? | G? |
| Caecidotea carolinensis P: caves; in McDowell County | Bennett's Mill Cave Water Slater | SR | C2 | S1 | G? |
| Cambarus catagius P: Greensboro area to Uwharries (endemic to North Carolina) | Greensboro Burrowing Crayfish | SR | 3C | S2S3 | GU |
| Cambarus georgiae M: streams in Little Tennessee drainage | Little Tennessee Crayfish | SR | 3C | S1? | G1 |
| Cambarus hiwasseeensis M: streams in Hiwassee drainage | Hiwassee Crayfish | SR | C2 | S3? | G4G5 |
| Cambarus parrishi M: streams in Hiwassee drainage | Parrish Crayfish | SR | C2 | S1? | G1 |
| Cambarus reburus M: streams in upper portions of French Broad drainage, and in one stream in Savannah drainage (endemic to North Carolina) | French Broad Crayfish | SR | C2 | S2S3? | G2G3 |
| Cymocythere clavata M: symbiotic on crayfish in mountain streams and rivers | Oconee Crayfish Ostracod | SR | C2 | S2? | G? |
| Dactylocythere isabellae P: symbiotic on crayfish in Lyle Creek in Catawba drainage (endemic to North Carolina) | Catawba Crayfish Ostracod | SR | C2 | S1? | G? |
| Dactylocythere peedeensis P: symbiotic on crayfish in Pee Dee drainage (endemic to North Carolina, but likely occurs in South Carolina) | Pee Dee Crayfish Ostracod | SR | C2 | S2? | G? |
| Dactylocythere prinsi M: cold streams of Savannah drainage in Jackson County (endemic to North Carolina, but possible in adjacent South Carolina and Georgia) | Whitewater Crayfish Ostracod | SR | C2 | S1 | G? |
| Diacyclops jeannelli putei P: dug well, in Orange County (endemic to North Carolina) | Carolina Well Diacyclops | SR | C2 | S1? | G? |
| Lynceus gracilicornis C: temporary ponds, pools, and ditches | Graceful Clam Shrimp | SR | | S2? | G? |
| Orconectes virginienensis C: streams and rivers in the Chowan and Roanoke drainages | Chowanoke Crayfish | SR | C2 | S2? | G2 |

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 31

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---------------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Procambarus leptodactylus C: streams and canals in Waccamaw drainage | Pee Dee Lotic Crayfish | SR | C2 | S2? | G2G3 |
| Procambarus medialis C: sluggish streams and ditches in Tar and Neuse drainages (endemic to North Carolina) | Tar River Crayfish | SR | C2 | S2? | G2 |
| Procambarus plumimanus C: rivers, ponds, ditches, and borrow pits in eastern Coastal Plain (endemic to North Carolina) | Croatan Crayfish | SR | C2 | S2? | G2 |
| Skistodiaptomus carolinensis M: Lake Ravenel in Macon County (endemic to North Carolina) | Carolina Skistodiaptomus | SR | C2 | S1? | G? |
| Stygobromus araeus C: seeps and springs; Gates County | Tidewater Interstitial Amphipod | SR | C2 | S1? | G2 |
| Stygobromus carolinensis M: seeps at Mount Mitchell (endemic to North Carolina) | Yancey Sideswimmer | SR | C2 | S1 | G? |
| Stygobromus indentatus PC: seeps, shallow wells; Nash County | Tidewater Amphipod | SR | C2 | S1? | G2G3 |
| Waltoncythere acuta M: symbiotic on crayfish in high gradient rivers and streams in Transylvania County (endemic to North Carolina, but likely occurs in SC) | Transylvania Crayfish Ostracod | SR | C2 | S2? | G? |

INSECTS -- MAYFLIES

| | | | | | |
|---------------------|--------------------------------|----|-----|-----|------|
| Dolania americana | American Sand Burrowing Mayfly | SR | C2 | S1? | G? |
| Ephemerella argo | Argo Ephemerellan Mayfly | SR | C2 | S1 | G1G3 |
| Seratella spiculosa | Spiculose Seratellan Mayfly | SR | C2* | SH | GH |

INSECTS -- CADDISFLIES

| | | | | | |
|---------------------------|--------------------------|----|----|----|----|
| Agapetus jocassee | a caddisfly | SR | C2 | S? | G? |
| Ceraclea sp. 1 | Lenat's Ceraclea | SR | C2 | S? | G? |
| Helicopsyche paralimnella | a caddisfly | SR | C2 | S? | G? |
| Hydroptila englishi | a caddisfly | SR | C2 | S? | G? |
| Madeophylax altus | Mount Mitchell Caddisfly | SR | | S? | G? |

32 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name | Common Name | Status | | Rank | |
|--------------------------------------|------------------------|--------|------|------|--------|
| Province: Habitat | | N.C. | U.S. | N.C. | Global |
| INSECTS -- DRAGONFLIES ¹³ | | | | | |
| Aeshna tuberculifera | Black-tipped Darner | SR | | S1? | G4 |
| M: boggy or marshy ponds | | | | | |
| Celithemis martha | Martha's Pennant | SR | | S1S3 | G4 |
| C: boggy or marshy ponds and lakes | | | | | |
| Cordulegaster erronea | Tiger Spiketail | SR | | S2S3 | G4 |
| M: small forested streams | | | | | |
| Cordulegaster fasciata | Banded Spiketail | SR | | S2S3 | G3Q |
| P?: small forested streams | | | | | |
| Dromogomphus spoliatus | Flag-tailed Spinyleg | SR | | SR | G4G5 |
| M?: rivers, creeks, ponds | | | | | |
| Gomphus abbreviatus | Spine-crowned Clubtail | SR | | S2S3 | G3G4 |
| MP: rivers | | | | | |
| Gomphus adelphus | Moustached Clubtail | SR | 3B | SR | G4 |
| M: small rivers with rapids | | | | | |
| Gomphus australis | Clearlake Clubtail | SR | | S2S3 | G4 |
| C: lakes and ponds | | | | | |
| Gomphus borealis | Beaverpond Clubtail | SR | | SH | G4 |
| M: lakes, ponds, streams | | | | | |
| Gomphus cavillaris brimleyi | Brimley's Clubtail | SR | | S1S3 | G4T3 |
| C: sand-bottomed lakes and streams | | | | | |
| Gomphus consanguis | Cherokee Clubtail | SR | C2 | S1 | G2G3 |
| M: small spring-fed streams | | | | | |
| Gomphus descriptus | Harpoon Clubtail | SR | | S1S3 | G3G4 |
| M: large streams and rivers | | | | | |
| Gomphus diminutus | Diminutive Clubtail | SR | | S1S3 | G3 |
| C: sand-bottomed streams | | | | | |
| Gomphus lineatifrons | Splendid Clubtail | SR | | S2S3 | G4 |
| MP: rivers | | | | | |
| Gomphus parvidens carolinus | Sandhills Clubtail | SR | C2 | S2? | G4T?Q |
| C: small spring-fed streams | | | | | |
| Gomphus parvidens parvidens | Piedmont Clubtail | SR | | S2S3 | G4T?Q |
| M: small spring-fed streams | | | | | |
| Gomphus septima | Septima's Clubtail | SR | C2 | S1 | G2 |
| P: rivers | | | | | |
| Gomphus ventricosus | Skillet Clubtail | SR | | S2? | G3G4 |
| M: rivers | | | | | |
| Gomphus viridifrons | Green-faced Clubtail | SR | | S1S3 | G3 |
| M: rivers | | | | | |
| Lanthus parvulus | Zorro Clubtail | SR | | SR | G3G4 |
| M: small spring-fed streams | | | | | |
| Leucorrhinia frigida | Frosted Whiteface | SR | | S1? | G5 |
| C?: one record from a Carolina bay | | | | | |

¹³ State ranks are based on information obtained primarily from the following published sources: Brimley, 1938; Needham and Westfall, 1954; Wray, 1967; Cuyler, 1968 and 1984; and Carle, 1982. Additional information was obtained from NC NHP field surveys and from consultation with Duncan Cuyler.

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 33

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|--------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Libellula exusta C: boggy ponds | White Corporal | SR | | SR | G4 |
| Macromia margarita M: rivers | Margaret's River Cruiser | SR | C2 | S1S2 | G2G3 |
| Nannothemis bella C: boggy swales | Elfin Skimmer | SR | | S2S3 | G4 |
| Neurocordulia molesta C: rivers | Smoky Shadowfly | SR | | S2S3 | G3 |
| Neurocordulia virginienensis P: large rivers | Cinnamon Shadowfly | SR | | S2S3 | G4 |
| Ophiogomphus aspersus M: rapids of rivers and streams | Brook Snaketail | SR | | SR | G3G4 |
| Ophiogomphus edmundo M: Blue Ridge Escarpment streams | Edmund's Snaketail | SR | C2* | S1? | G1? |
| Ophiogomphus howei M: rivers | Pygmy Snaketail | SR | C2 | S1? | G3 |
| Ophiogomphus incurvatus incurvatus P: small gravelly streams | Allegheny Snaketail | SR | | S2S3 | G3G4T3 |
| Ophiogomphus mainensis M: rapids of rivers and streams | Twin-horned Snaketail | SR | | S1S3 | G3G4 |
| Progomphus belli C: sand-bottomed lakes and streams | Belle's Sanddragon | SR | C2 | S1 | G3 |
| Stylurus amnicola MPC: rivers | Riverine Clubtail | SR | | S2S3 | G3G4 |
| Stylurus notatus P: large rivers | Elusive Clubtail | SR | C2 | S1S3 | G3G4 |
| Stylurus scudderii M: streams and rivers | Zebra Clubtail | SR | | S3? | G3G4 |
| Stylurus townesi C: small rivers | Townes' Clubtail | SR | C2 | S1? | G3 |
| Sympetrum obtrusum M: boggy or marshy ponds and lakes | White-faced Meadowfly | SR | | S1S3 | G5 |
| Tachopteryx thoreyi MP: mucky springs and seeps | Gray Petaltail | SR | | S3? | G4 |
| Tramea cophysa (= calverti) C: marshy ponds and lakes | Striped Glider | SR | | S2S3 | G5 |

INSECTS -- FLIES

| | | | | | |
|---|-------------------------------|----|----|------|------|
| Eulonchus marialiciae M: (endemic to North Carolina) | Mary Alice's Small-headed Fly | SR | C2 | S1S3 | G1G3 |
|---|-------------------------------|----|----|------|------|

34 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name | Common Name | Status | | Rank | |
|-------------------|-------------|--------|------|------|--------|
| Province: Habitat | | N.C. | U.S. | N.C. | Global |

| INSECTS -- MOTHS ¹⁴ | | | | | |
|---|-----------------------|----|----|------|------|
| Acrapex relict C: canebrakes | a cane borer | SR | | S2S3 | |
| Acronicta albarufa P: oak glades and barrens | Barrens Daggermoth | SR | C2 | SH | G3G4 |
| Acronicta sinenscripta C: savannas and flatwoods | a dagger moth | SR | | S1S3 | |
| Agrotis buchholzi C: flatwoods with Pixie Moss | Buchholz's Dart Moth | SR | C2 | S2S3 | G2G3 |
| Anacamptodes nr. cypressaria C: non-riverine cypress swamps | a new inchworm moth | SR | | SU | |
| Argyrostroma deleta C: savannas | an owlet moth | SR | | S2S3 | |
| Callosamia securifera C: pocosins and other wetlands with sweetbay | Sweetbay Silkmoth | SR | | S2S3 | G4 |
| Catocala amestris C: sand ridges and flatwoods with leadplant | Three-staff Underwing | SR | | S1S2 | G4 |
| Catocala dulcicola M: forests with hawthorns | Sweet Underwing | SR | | SU | G2G4 |
| Catocala grisatra C: sandhills and dry woods with hawthorns | Grisatra Underwing | SR | | S1S3 | |
| Catocala herodias gerhardi M: oak forests, particularly with scrub oak | Herodias Underwing | SR | | SU | |
| Catocala jair C: xeric pine-oak sandhills | Jair Underwing | SR | | S1S3 | |
| Catocala lincolnana C: wooded areas with hawthorns | Lincoln Underwing | SR | | S1S2 | |
| Catocala louiseae C: flatwoods and other habitats with blueberries | Louise's Underwing | SR | | S1S3 | |
| Catocala marmorata C: unknown | Marbled Underwing | SR | | SH | G4 |
| Catocala messalina T: maritime forests and xeric sandhills | Messalina Underwing | SR | | S2? | G4 |
| Catocala pretiosa texarkana M: hardwood forests with hawthorns | Texarkana Underwing | SR | | SU | G4T4 |
| Cepphis nr. decoloraria C: non-riverine swamp forests | a new inchworm moth | SR | | SU | GU |
| Cerma cora C: forests with laurel cherry | a bird-dropping moth | SR | | SU | |
| Chaetagnathaea n. sp. C: sandhills? | a new sawfly moth | SR | | SU | |
| Cyclophora culicaria C: flatwoods with sand-myrtle | Sand-myrtle Geometer | SR | | S3? | |

¹⁴ State ranks are based primarily on information provided by NC NHP field surveys and from consultations with Dale Schweitzer and J.B. Sullivan.

NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA 35

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|-----------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| <i>Dasychira atrivenosa</i> C: hardwood forests | a tussock moth | SR | | SU | G4 |
| <i>Doryodes n. sp.</i> C: savannas | a new owlet moth | SR | | S2S3 | G3G4 |
| <i>Drasteria graphica</i> T: beach dunes | Graphic Moth | SR | | S2S3 | |
| <i>Dysgonia similis</i> C: pocosins and flatwoods | an owlet moth | SR | | S2S3 | |
| <i>Dysgonia smithii</i> C: flatwoods | Smith's Darkwing | SR | | S2S3 | |
| <i>Euagrotis lubricans</i> C: savannas and flatwoods | Slippery Dart Moth | SR | | S3? | G4 |
| <i>Euchlaena milnei</i> M: unknown | Milne's <i>Euchlaena</i> | SR | C2 | S1S3 | |
| <i>Eupithecia peckorum</i> C: sandhills and flatwoods | an inchworm moth | SR | | S2? | |
| <i>Euxoa violaris</i> C: sandhills and dunes | Violet Dart | SR | | S2S3 | |
| <i>Exyra semicrocea</i> C: wetlands with pitcher plants | a pitcher plant moth | SR | | S2S3 | |
| <i>Gabara distema humeralis</i> C: savannas | an owlet moth | SR | | S2S3 | G4 |
| <i>Gabara pulverosalis</i> C: savannas | an owlet moth | SR | | SU | G4 |
| <i>Glena plumosaria</i> CP: red cedar glades and Atlantic white cedar forests | Plumose <i>Glena</i> | SR | | S2S3 | |
| <i>Grammia placentia</i> C: sandhills | Placentia Tiger Moth | SR | | S2S3 | |
| <i>Hemipachnobia subporphyria subporphyria</i> C: savannas with Venus flytraps | Venus Flytrap Cutworm Moth | SR | C2 | S1S2 | G4T1T3 |
| <i>Hemipachnobia subporphyria monochromatea</i> C: cranberry bogs and northern low pocosins | Sundew Cutworm Moth | SR | | S1? | G4T4 |
| <i>Hepialus sciophanes</i> M: spruce-fir forests | a ghost moth | SR | C2 | S1S3 | |
| <i>Heterocampa varia</i> C: xeric pine-oak sandhills | a prominent moth | SR | | SH | |
| <i>Hypagyrtis nr. brendae</i> C: Atlantic white cedar forests | a new inchworm moth | SR | | SU | |
| <i>Hypomecis buchholzaria</i> C: fire-maintained glades and barrens | Buchholz's <i>Hypomecis</i> | SR | | SH | |
| <i>Itame subcessaria</i> M: high elevation forests with gooseberries | Barred <i>Itame</i> | SR | | S1S3 | |
| <i>Lagoa pyxidifera</i> C: savannas, flatwoods, and sandhills | Yellow Flannel Moth | SR | | S2? | |
| <i>Lithophane georgii</i> M: spruce-fir forests | a pinion moth | SR | | S1? | |

36 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Lithophane lemmeri CP: cedar glades and Atlantic white cedar forests | Lemmer's Pinion | SR | 3C | S1S3 | G3G4 |
| Lithophane nr. laceyi C: swamp forests | a new pinion moth | SR | | S1S3 | GU |
| Macrochilo louisiana C: grassy wetlands | Louisiana Owlet Moth | SR | | S2S3 | G4 |
| Meropleon cinnamicolor TC: coastal marshes | an owlet moth | SR | | S2S3 | GU |
| Meropleon diversicolor sullivanii T: coastal marshes | an owlet moth | SR | | S1S3 | |
| Metarranthia lateritiaria (of Guenee) C: flatwoods and pocosins | an inchworm moth | SR | | S1S3 | G3G4 |
| Metarranthia sp. 1 C: pocosins | a new inchworm moth | SR | | SU | GU |
| Nematocampa baggetaria C: unknown | Baggett's Nematocampa | SR | | SU | GU |
| Nemoria tuscarora M: unknown | Tuscarora Emerald | SR | | S1S3 | GU |
| New Notodontid Genus 1 C: flatwoods? | a new prominent moth | SR | | S1S2 | GU |
| Orgyia detrita TC: maritime forests and swamp forests | a tussock moth | SR | | S2S3 | G4 |
| Papaipema duplicata M: rich woods with Collinsonia canadensis | a borer moth | SR | | SH | GU |
| Phragmatiphila interrogans C: canebrakes | an owlet moth | SR | | SU | |
| Ptichodis bistrigata C: xeric sandhills | Southern Ptichodis | SR | | S2S3 | G3 |
| Pygarcia abdominalis C: flatwoods? | Yellow-edged Pygarcia | SR | | S1S2 | |
| Pyreferra ceromatica C: flatwoods and pocosins with Fothergilla? | Annointed Sallow Moth | SR | C2 | S1S3 | GU |
| Schinia obscurata C: sandhills | Obscure Schinia | SR | | S2S3 | |
| Semiothisa fraserata M: spruce-fir forests with Fraser fir | Fraser Fir Angle | SR | C2 | S1S3 | GU |
| Spartiniphaga carterae C: savannas and sandhills with pinebarrens sandreed | Carter's Spartiniphaga | SR | C2 | S2S3 | G2G3 |
| Trichosilia manifesta C: sandhills | an owlet moth | SR | | S2S3 | |
| Zale declarans T: maritime forests with live oak | an owlet moth | SR | | S2S3 | |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| INSECTS -- BUTTERFLIES ¹⁵ | | | | | |
| Amblyscirtes alternata C: open pine woods, savannas; host plants -- unknown, but presumably grasses | Least Florida Skipper | SR | | S2? | G3G4 |
| Amblyscirtes reversa CP: swamps, wet woods, or pocosin borders, near cane; host plant -- cane (<u>Arundinaria</u>) | Reversed Roadside Skipper | SR | | S3? | G4 |
| Atrytone arogos arogos C: savannas, open pinewoods, and other relatively undisturbed grasslands; host plants -- grasses, mainly broomsedge (<u>Andropogon</u>) | Arogos Skipper | SR | C2 | S1 | G4T1T3 |
| Atrytonopsis loammi CT: grassy areas; host plants -- presumed to be <u>Andropogon</u> grasses | Loammi Skipper | SR | | S1? | G2G4Q |
| Autochton cellus MPC: moist woods near streams or ponds; host plants -- legumes, mainly hog peanut (<u>Amphicarpa</u>) | Golden-banded Skipper | SR | | S1S2 | G4 |
| Calephelis virginienensis C: savannas, flatwoods, other open pinewoods; host plant -- thistle (<u>Cirsium horridulum</u>) | Little Metalmark | SR | | S3? | G4 |
| Celastrina ebenina M: rich, moist deciduous forests; host plant -- goat's-beard (<u>Aruncus dioicus</u>) | Dusky Azure | SR | | S1S3 | G4 |
| Celastrina neglectamajor M: rich deciduous forests; host plant -- black cohosh (<u>Cimicifuga</u>) | Appalachian Blue | SR | | S1? | G4 |
| Erora laeta M: deciduous forests, especially along roads or edges at high elevations; host plants -- mainly beech (<u>Fagus</u>) and hazelnut (<u>Corylus</u>) | Early Hairstreak | SR | | S2? | G4 |
| Erynnis martialis MPC: upland woods and wooded edges; host plant -- New Jersey tea (<u>Ceanothus americanus</u>) | Mottled Dusky Wing | SR | | S3? | G4 |
| Euphydryas phaeton M: bogs, marshes, wet meadows; rarely in upland woods; host plants -- turtlehead (<u>Chelone</u>) and false foxglove (<u>Aureolaria</u>) | Baltimore | SR | | S2S3 | G4 |
| Euphyes berryi C: wet areas near ponds, canals, or marshes; host plant -- not known, but probably sedges | Berry's Skipper | SR | | S1? | G3G4 |
| Euphyes bimacula C: marshes, wet savannas, sedgy areas near wet woods; host plants -- sedges (<u>Carex</u>) | Two-spotted Skipper | SR | | S2? | G4 |

¹⁵ State ranks are based primarily on information provided by NC NHP field surveys and from consultations with Dale Schweitzer and J.B. Sullivan.

38 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Euphyes dukesi CT: ecotones of brackish or fresh marshes with swamps; host plants -- sedges (<u>Carex</u>) | Dukes' Skipper | SR | | S2? | G3G4 |
| Fixsenia favonius favonius T: maritime forests; host plant -- oaks, especially live oak (<u>Quercus virginiana</u>) | Southern Hairstreak | SR | | S2S3 | G4T4 |
| Fixsenia favonius ontario PCT: oak-dominated woods, usually in dry sites; host plants -- oaks (<u>Quercus</u>) | Northern Hairstreak | SR | | S3? | G4T4 |
| Glaucopsyche lygdamus M: open upland woods, roadbanks, and borders; host plants -- legumes, especially Carolina vetch (<u>Vicia caroliniana</u>) | Silvery Blue | SR | | S2S3 | G5 |
| Hesperia attalus slossonae C: pine/oak sandhills, flatwoods, savannas; host plants -- grasses | Dotted Skipper | SR | | S2S3 | G4T3 |
| Hesperia meskei C: open pine woods, especially in Sandhills; host plants -- grasses | Meske's Skipper | SR | | S2? | G3? |
| Hesperia sassacus M: old fields, clearings, wood margins, mainly at high elevations; host plants -- grasses | Indian Skipper | SR | | S1? | G5 |
| Incisalia irus MPC: open woods and borders, usually in dry situations; host plants -- lupines (<u>Lupinus</u>) and wild indigos (<u>Baptisia</u>) | Frosted Elfin | SR | | S3? | G4 |
| Lethe (see Enodia) | | | | | |
| Megathymus cofaqui no location data; areas near yucca; host plants -- <u>Yucca</u> species | Cofaqui Skipper | SR | | S1? | G? |
| Mitoura hesseli C: Atlantic white cedar swamps; host plant -- white cedar (<u>Chamaecyparis thyoides</u>) | Hessel's Hairstreak | SR | | S2? | G3G4 |
| Neonympha mitchellii francisci C: boggy areas, overgrown beaver ponds, and pocosin margins with sedges in sandhills; host plants -- sedges (taxon endemic to North Carolina) | Mitchell's Satyr | SR | E | S1 | G2T1? |
| Papilio cresphontes TCPM: primarily coastal in maritime forests or thickets; host plants -- prickly ash (<u>Zanthoxylum</u>), hoptree (<u>Ptelea</u>) | Giant Swallowtail | SR | | S2? | G5 |
| Phyciodes batesii M: rocky ridges, woodland openings, at higher elevations; host plants -- asters, mainly <u>Aster undulatus</u> | Tawny Crescent | SR | C2 | S1? | G3G4 |
| Phyciodes selenis M: rocky areas (in Appalachians), but habitat poorly known; host plants -- asters | Northern Crescent | SR | | SU | G5 |

INDEX TO THE NC NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA, 1995 EDITION

| | |
|-----------------------------|--------|
| Abrostola ovalis | 54 |
| Acanthocyclops carolinianus | 30 |
| Accipiter cooperii | 13 |
| Accipiter gentilis | 13, 62 |
| Accipiter striatus | 13 |
| Acipenser hrevirostrum | 19, 23 |
| Acipenser fulvescens | 19 |
| Acipenser oxyrhynchus | 19, 23 |
| Acrapex relicta | 34 |
| Acronicta albarufa | 34 |
| Acronicta lanceolaria | 54 |
| Acronicta sinenscripta | 34 |
| Adelopsis mitchellensis | 59 |
| Aegolius acadicus | 13 |
| Aeshna tuberculifera | 32 |
| Aeshna verticalis | 53 |
| Agapetus jocassee | 31 |
| Agathidium sp 1 | 59 |
| Aglenus brunneus | 59 |
| Agonum gracilentum | 59 |
| Agrotis buchholzi | 34 |
| Aimophila aestivalis | 13 |
| Alasmidonta heterodon | 23 |
| Alasmidonta raveneliana | 23 |
| Alasmidonta robusta | 23 |
| Alasmidonta undulata | 23 |
| Alasmidonta varicosa | 23 |
| Alasmidonta viridis | 23 |
| Alligator mississippiensis | 17 |
| Ambloplites cavifrons | 19 |
| Amblyopone trigonignatha | 60 |
| Amblyscirtes alternata | 37 |
| Amblyscirtes carolina | 57 |
| Amblyscirtes reversa | 37 |
| Amblyscirtes vialis | 57 |
| Ambystoma mabeei | 49 |
| Ambystoma talpoideum | 18 |

| | |
|-----------------------------|----|
| Ambystoma tigrinum | 18 |
| Ammodramus henslowii | 13 |
| Anas discors | 47 |
| Anas rubripes | 47 |
| Aneides aeneus | 18 |
| Anhinga anhinga | 13 |
| Anillinus carolinae | 59 |
| Anillinus sp 2 | 59 |
| Anillinus sp 4 | 59 |
| Anodonta couperiana | 24 |
| Anodonta implicata | 24 |
| Apalone spinifera spinifera | 17 |
| Aphylla williamsoni | 53 |
| Aplodinotus grunniens | 19 |
| Aquila chrysaetos | 13 |
| Ardea herodias | 47 |
| Argopecten gibbus | 51 |
| Argyrostrotis deleta | 34 |
| Argyrostrotis erasa | 54 |
| Arianops alticola | 59 |
| Arianops barbata | 59 |
| Arianops coweeti | 59 |
| Arianops fovealis | 59 |
| Arianops gigantea | 59 |
| Arianops laminata | 59 |
| Arianops nantahalae joanna | 59 |
| Arianops nodosa | 59 |
| Arianops norithe | 59 |
| Arianops parki | 59 |
| Arianops plectrops | 59 |
| Arianops spinicollis | 59 |
| Arianops teyahalee | 59 |
| Arianops thornei | 59 |
| Arianops unicoi | 60 |
| Arigomphus pallidus | 53 |
| Arigomphus villosipes | 53 |
| Arugisa watsoni | 55 |

| | |
|-----------------------------|--------|
| Ascetocythere cosmeta | 30 |
| Asio otus | 47, 62 |
| Asterocampa clyton | 57 |
| Atrytone arogos arogos | 37 |
| Atrytonopsis loammi | 37 |
| Attheyella obatogamensis | 30 |
| Autochthon cellus | 37 |
| Boraria deturkiana | 53 |
| Botaurus lentiginosus | 13 |
| Brachoria eutypa | 53 |
| Brachypanorpa carolinensis | 54 |
| Busycon canaliculatus | 51 |
| Busycon carica | 51 |
| Busycon contrarium | 51 |
| Caecidotea carolinensis | 30 |
| Calephelis virginensis | 37 |
| Callosamia securifera | 34 |
| Calopteryx amata | 53 |
| Cambarus catagius | 30 |
| Cambarus chasmodactylus | 52 |
| Cambarus georgiae | 30 |
| Cambarus hiwasseeensis | 30 |
| Cambarus howardi | 52 |
| Cambarus parrishi | 30 |
| Cambarus reburus | 30 |
| Canis rufus | 11 |
| Canthocamptus vagus | 52 |
| Carduelis pinus | 48 |
| Caretta caretta | 17 |
| Carpoides carpio | 19 |
| Carpoides velifer | 19 |
| Catharus guttatus | 13, 62 |
| Catinella avara | 27 |
| Catocala dulciola | 34 |
| Catocala marmorata | 34 |
| Catocala messalina | 34 |
| Catocala pretiosa texarkana | 34 |

| | |
|-------------------------------------|--------|
| Celastrina ebenina | 37 |
| Celastrina neglectamajor | 37 |
| Celithemis martha | 32 |
| Celithemis monomelaena | 53 |
| Certhia americana | 48 |
| Chaetopterus variopedatus | 60 |
| Charadrius melodus | 13 |
| Charadrius wilsonia | 48 |
| Chelonia mydas | 17 |
| Chondestes grammacus | 13 |
| Cicindela abdominalis | 60 |
| Cicindela ancocisconensis | 60 |
| Cicindela dorsalis media | 40, 60 |
| Cicindela lepida | 40 |
| Cicindela patruela | 40 |
| Cicindela purpurea | 60 |
| Cicindela splendida | 60 |
| Circus cyaneus | 13 |
| Cleidogono tallapoosa | 53 |
| Clemmys muhlenbergii | 17 |
| Cleora projecta | 55 |
| Coccyzus erythrophthalmus | 14 |
| Columbina passerina | 14 |
| Contopus borealis | 14, 62 |
| Coragyps atratus | 14 |
| Cordulegaster erronea | 32 |
| Cordulegaster fasciata | 32 |
| Cordulegaster obliqua | 53 |
| Corvus corax | 14 |
| Corynorhinus rafinesquii | 11 |
| Corynorhinus townsendii virginianus | 11 |
| Coryphaeschna ingens | 53 |
| Cottus carolinae | 19 |
| Coturnicops noveboracensis | 14 |
| Croatania catawba | 53 |
| Crotalus adamanteus | 17 |
| Cryptobranchus alleganiensis | 18 |

LIBRARY

JUL 11 1995

NC DEPT OF ENVIRONMENT, HEALTH
& NATURAL RESOURCES

| | |
|----------------------------|--------|
| Cymocythere clavata | 30 |
| Cyprinella labrosa | 50 |
| Cyprinella monacha | 20, 21 |
| Cyprinella spiloptera | 50 |
| Cytheridella ilosvayi | 52 |
| Dactylocythere chelomata | 52 |
| Dactylocythere falcata | 52 |
| Dactylocythere isabelae | 30 |
| Dactylocythere prinsi | 30 |
| Dasychira atrivenosa | 35 |
| Dasychira leucophaea | 55 |
| Deirochelys reticularia | 17 |
| Deltotaria lea | 53 |
| Dendroica cerulea | 14 |
| Dendroica magnolia | 14, 62 |
| Dermochelys coriacea | 17 |
| Desmognathus aeneus | 18 |
| Desmognathus imitator | 49 |
| Desmognathus santeetlah | 18 |
| Desmognathus wrighti | 49 |
| Detracia clarki | 51 |
| Diacyclops jeannelli putei | 30 |
| Discus bryanti | 27 |
| Dixioria dactylifera | 53 |
| Dolania americana | 31 |
| Dromogomphus armatus | 53 |
| Dromogomphus spoliatus | 32 |
| Dynoria icana | 53 |
| Dysgonia similis | 35 |
| Egretta caerulea | 14 |
| Egretta thula | 14 |
| Egretta tricolor | 14 |
| Elassoma boehlkei | 20 |
| Elassoma evergladei | 50 |
| Eleotris pisonis | 23 |
| Elliptio cistelliformis | 50 |
| Elliptio congaraea | 50 |
| Elliptio dilatata | 24 |
| Elliptio folliculata | 24 |
| Elliptio lanceolata | 24 |
| Elliptio marsupiobesa | 24 |
| Elliptio producta | 50 |

| | |
|-------------------------------|--------|
| Elliptio raveneli | 50 |
| Elliptio roanokensis | 24 |
| Elliptio steinstansana | 24 |
| Elliptio waccamawensis | 24 |
| Empidonax alnorum | 14 |
| Empidonax minimus | 48 |
| Empidonax traillii | 48 |
| Enallagma minusculum | 53 |
| Enodia anhedon | 57 |
| Ephemerella argo | 31 |
| Epioblasma capsaeformis | 24 |
| Epithea spinosa | 53 |
| Erdelyia saucra | 53 |
| Erethizon dorsatum | 47, 61 |
| Eretmochelys imbricata | 17 |
| Erimystax insignis | 50 |
| Erora laeta | 37 |
| Erpetogomphus designatus | 53 |
| Erynnis martialis | 37 |
| Etheostoma acuticeps | 20 |
| Etheostoma collis | 20 |
| Etheostoma inscriptum | 20 |
| Etheostoma jessiae | 20 |
| Etheostoma kanawhae | 20 |
| Etheostoma mariae | 20 |
| Etheostoma perlongum | 20 |
| Etheostoma podostemone | 20 |
| Etheostoma simoterum | 20 |
| Etheostoma vulneratum | 20 |
| Euagrotis lubricans | 35 |
| Euchlaena milnei | 35 |
| Eudocimus albus | 48 |
| Eulonchus marialiciae | 33 |
| Eumeces anthracinus | 49 |
| Euphydryas phaeton | 37 |
| Euphyes berryi | 37 |
| Euphyes bimacula | 37 |
| Euphyes dukesi | 38 |
| Eurycea junaluska | 18 |
| Eurycea longicauda longicauda | 18 |
| Euxoa declarata | 55 |
| Evorthodus lyricus | 23 |

| | |
|------------------------------|----|
| Exoglossum laurae | 20 |
| Exoglossum maxillingua | 20 |
| Exyra semicrocea | 35 |
| Falco peregrinus | 14 |
| Falco sparverius | 48 |
| Faronta rubripennis | 55 |
| Felis concolor cougar | 11 |
| Ferrissia hendersoni | 26 |
| Fixsenia favonius favonius | 38 |
| Formica exsectoides | 60 |
| Fundulus confluentus | 50 |
| Fundulus luciae | 50 |
| Fundulus waccamensis | 20 |
| Fusconaia barnesiana | 24 |
| Fusconaia masoni | 24 |
| Fusconaia subrotunda | 24 |
| Gabara distema humeralis | 35 |
| Gabara pulverosalis | 35 |
| Glaucomys sabrinus coloratus | 11 |
| Glaucomys lygdamus | 38 |
| Glena plumosaria | 35 |
| Glyphyalinia clingmani | 27 |
| Glyphyalinia junaluska | 27 |
| Glyphyalinia pentadelphia | 27 |
| Glyphyalinia vanattai | 27 |
| Gobionellus stigmaticus | 23 |
| Gomphus abbreviatus | 32 |
| Gomphus adelphus | 32 |
| Gomphus apomyius | 53 |
| Gomphus australis | 32 |
| Gomphus borealis | 32 |
| Gomphus cavillaris brimleyi | 32 |
| Gomphus consanguis | 32 |
| Gomphus descriptus | 32 |
| Gomphus dilatatus | 53 |
| Gomphus diminutus | 32 |
| Gomphus lineatifrons | 32 |
| Gomphus parvidens carolinus | 32 |
| Gomphus rogersi | 54 |
| Gomphus septima | 32 |
| Gomphus ventricosus | 32 |
| Gomphus viridifrons | 32 |

| | |
|---|--------|
| Goniobasis interrupta | 26 |
| Haliaeetus leucocephalus | 15 |
| Haplotrema kendeighi | 27 |
| Harpagocythere baileyi | 52 |
| Helicodiscus bonamicus | 27 |
| Helicodiscus fimbriatus | 27 |
| Helicodiscus triodus | 27 |
| Heliconius charitonius tuckeri | 57 |
| Helicopsyche paralimnella | 31 |
| Heliomata infulata | 55 |
| Helisoma eucosmium | 26 |
| Hemidactylum scutatum | 18 |
| Hemipachnobia subporphyria subporphyria | 35 |
| Hepialus sciophanes | 35 |
| Hesperia attalus slossonae | 38 |
| Hesperia leonardus | 57 |
| Hesperia meskei | 38 |
| Hesperia metea | 57 |
| Hesperia sassacus | 38 |
| Hesperodiaptomus augustaensis | 52 |
| Hesperotettix viridis brevipennis | 58 |
| Heterandria formosa | 21 |
| Heterodon simus | 17 |
| Himantopus mexicanus | 15 |
| Hiodon tergisus | 21 |
| Hydroptila englishi | 31 |
| Hyla andersonii | 18 |
| Hyla versicolor | 45, 49 |
| Hypentelium roanokense | 21 |
| Hypochilus coylei | 29 |
| Hypochilus sheari | 29 |
| Hypsoblennius ionthas | 23 |
| Ichthyomyzon bdellium | 21 |
| Icterus galbula | 48 |
| Ictinia mississippiensis | 15, 63 |
| Idaea violacearia | 55 |
| Incisalia augustinus | 57 |
| Incisalia irus | 38 |
| Isoparce cupressi | 55 |
| Ixobrychus exilis | 48 |
| Kinosternon baurii | 49 |
| Lampetra aepyptera | 21 |

| | | | | | | | |
|--|--------|---|--------|--|----|---|--------|
| Lampetra appendix | 21 | Martes pennanti | 47, 62 | Necturus lewisi | 19 | Ophiogomphus mainensis | 33 |
| Lampropeltis getula sticticeps | 17 | Masticophis flagellum | 49 | Necturus maculosus | 19 | Ophisaurus mimicus | 18 |
| Lampsilis cariosa | 24 | Mayetia bulla | 60 | Nemoria elfa | 55 | Orconectes virginienensis | 30 |
| Lampsilis crocata | 24 | Mayetia pearsei | 60 | Nemoria tuscarora | 36 | Orgyia detrita | 36 |
| Lampsilis fasciola | 25 | Mayetia sp 2 | 60 | Neonympha mitchellii francisci | 38 | Orthemis ferruginea | 54 |
| Lampsilis fullerkati | 25 | Mayetia sp 3 | 60 | Neotoma floridana haematoreia | 12 | Pachydesmus crassicutus incurus | 53 |
| Lampsilis radiata | 25 | Medionidus conradicus | 25 | Neotoma magister | 12 | Pallifera hemphilli | 28 |
| Lanius ludovicianus migrans | 15 | Megathymus cofaqui | 38 | Neritina usnea | 51 | Panopea bitruncata | 51 |
| Lanthus parvulus | 32 | Megathymus yuccae | 57 | Nerodia sipedon williamengelsi | 17 | Paonias astylus | 56 |
| Lasiurus seminolus | 47 | Melanoplus decorus | 40 | Nesticus bishopi | 51 | Papaipema appassionate | 56 |
| Lasmigona decorata | 25 | Menidia extensa | 21 | Nesticus brimleyi | 29 | Papilio cresphontes | 38 |
| Lasmigona holstonia | 25 | Merope tuber | 54 | Nesticus carolinensis | 29 | Paramya subovata | 51 |
| Lasmigona subviridis | 25 | Meropleon cinnamicolor | 36 | Nesticus cooperi | 29 | Paravitrea andrewsae | 28 |
| Laterallus jamaicensis | 15 | Mesodon chilhoweensis | 27 | Nesticus crosbyi | 29 | Paravitrea clappi | 28 |
| Lathrobium shermani | 60 | Mesodon clarki | 27 | Nesticus gertschi | 51 | Paravitrea lacteodens | 28 |
| Lepidochelys kempii | 17 | Mesodon clarki nantahala | 27 | Nesticus mimus | 29 | Paravitrea lamellidens | 28 |
| Lepomis megalotis | 21 | Mesodon ferrissi | 27 | Nesticus nasicus | 51 | Paravitrea placentula | 28 |
| Lepomis punctatus | 50 | Mesodon jonesianus | 27 | Nesticus reclusus | 51 | Paravitrea temaria | 28 |
| Leptodea ochracea | 25 | Mesodon orestes | 27 | Nesticus sheari | 29 | Paravitrea umbilicaris | 28 |
| Leptoxis dilatata | 26 | Mesodon subpalliatum | 27 | Nesticus silvanus | 29 | Paravitrea varidens | 28 |
| Leptoxis virgata | 26 | Mesodon wheatleyi clingmanicus | 27 | Neurocordulia molesta | 33 | Parus atricapillus | 15 |
| Lepus americanus | 47, 62 | Metalepsis fishii | 55 | Neurocordulia virginienensis | 33 | Passerculus sandwichensis | 15, 63 |
| Leucorrhinia frigida | 32 | Microhexura montivaga | 29 | New noctuid genus 1 (reddish cane borer) | 55 | Passerina ciris ciris | 15 |
| Libellula exusta | 33 | Microphis brachyurus | 23 | Nicrophorus americanus | 41 | Pegias fabula | 25 |
| Libellula quadrimaculata | 54 | Micropterus coosae | 21 | Nocomis platyrhynchus | 50 | Pelecanus occidentalis | 15 |
| Lichnanthe vulpina | 60 | Microtus chrotorrhinus carolinensis | 11 | Notomastus lobatus | 60 | Percina aurantiaca | 22 |
| Ligumia nasuta | 25 | Micrurus fulvius | 17 | Notropis bifrenatus | 21 | Percina burtoni | 22 |
| Limnothlypis swainsonii | 48 | Mitoura hesseli | 38 | Notropis lutipinnis | 21 | Percina caprodes | 22 |
| Limulodes paradoxus | 60 | Moxostoma ariommum | 21 | Notropis maculatus | 50 | Percina gymnocephala | 50 |
| Lithophane lemmeri | 36 | Moxostoma carinatum | 21, 50 | Notropis mekistocholas | 21 | Percina macrocephala | 22 |
| Lordithon niger | 41 | Moxostoma robustum | 21 | Notropis rubescens | 21 | Percina oxyrhynchus | 22 |
| Lordocythere petersi | 52 | Mustela frenata | 47 | Notropis scabriceps | 50 | Percina sciera | 22 |
| Loxia curvirostra | 48 | Mustela nivalis | 11 | Notropis volucellus | 50 | Percina squamata | 22 |
| Lucania goodei | 21 | Mycteria americana | 15, 63 | Noturus eleutherus | 21 | Peromyscus leucopus easti | 12 |
| Luxilus chrysocephalus | 21 | Myotis austroriparius | 11 | Noturus flavus | 22 | Peromyscus polionotus | 12 |
| Lynceus gracilicornis | 30 | Myotis grisescens | 11 | Noturus gilberti | 22 | Phalacrocorax auritus | 15 |
| Macrochilo louisiana | 36 | Myotis leibii | 11 | Nyctanassa violacea | 48 | Phenacobius crassilabrum | 50 |
| Macromia margarita | 33 | Myotis lucifugus | 47 | Opheodrys vernalis | 18 | Phenacobius teretulus | 22 |
| Madeophylax altus | 31 | Myotis septentrionalis | 11 | Ophiogomphus aspersus | 33 | Phragmatiphila interrogans | 36 |
| Malaclemys terrapin centrata | 17 | Myotis sodalis | 11 | Ophiogomphus edmundi | 33 | Phyciodes batesii | 38 |
| Maronetus tenuis | 60 | Nannothemis bella | 33 | Ophiogomphus howei | 33 | Phyciodes phaon | 39 |
| Maronetus unistriatus | 60 | Nebria appalachia | 60 | Ophiogomphus incurvatus incurvatus | 33 | Phyciodes selenis | 38 |

| | | | | | | | |
|--|----|---|----|--|----|---|--------|
| <i>Picoides borealis</i> | 15 | <i>Rallus elegans</i> | 48 | <i>Sternotherus minor</i> | 18 | <i>Triodopsis tennesseensis</i> | 28 |
| <i>Pieris virginensis</i> | 57 | <i>Rana capito capito</i> | 19 | <i>Stizostedion canadense</i> | 22 | <i>Tritogonia verrucosa</i> | 25 |
| <i>Pituophis melanoleucus melanoleucus</i> | 18 | <i>Rana heckscheri</i> | 19 | <i>Strophitus undulatus</i> | 25 | <i>Tyto alba</i> | 48 |
| <i>Planorbella magnifica</i> | 26 | <i>Regina rigida</i> | 49 | <i>Stygobromus araeus</i> | 31 | <i>Ursus americanus</i> | 12 |
| <i>Plegadis falcinellus</i> | 15 | <i>Regulus satrapa</i> | 16 | <i>Stygobromus carolinensis</i> | 31 | <i>Vaejovis carolinianus</i> | 29 |
| <i>Plethodon aureolus</i> | 19 | <i>Rhadinaea flavilata</i> | 49 | <i>Stygobromus indentatus</i> | 31 | <i>Ventridens coelaxis</i> | 28 |
| <i>Plethodon dorsalis</i> | 19 | <i>Riparia riparia</i> | 16 | <i>Stylurus amnicola</i> | 33 | <i>Ventridens lasmodon</i> | 28 |
| <i>Plethodon richmondi</i> | 49 | <i>Rynchops niger</i> | 16 | <i>Stylurus notatus</i> | 33 | <i>Vermivora chrysoptera</i> | 49 |
| <i>Plethodon teyahalee</i> | 49 | <i>Satyrium caryaevorum</i> | 39 | <i>Stylurus scudderi</i> | 33 | <i>Vermivora pinus</i> | 16, 63 |
| <i>Plethodon wehrlei</i> | 19 | <i>Satyrium edwardsii</i> | 39 | <i>Stylurus spiniceps</i> | 54 | <i>Villosa constricta</i> | 25 |
| <i>Plethodon welleri</i> | 19 | <i>Satyrium kingi</i> | 39 | <i>Stylurus townesi</i> | 33 | <i>Villosa delumbis</i> | 25 |
| <i>Poanes aaroni aaroni</i> | 39 | <i>Scaphinotus guyoti</i> | 60 | <i>Sylvilagus aquaticus</i> | 12 | <i>Villosa iris</i> | 26 |
| <i>Polites mystic</i> | 39 | <i>Scaphinotus violaceus</i> | 60 | <i>Sylvilagus obscurus</i> | 12 | <i>Villosa vanuxemensis</i> | 26 |
| <i>Polygonia faunus</i> | 39 | <i>Sciurus niger</i> | 12 | <i>Sympetrum corruptum</i> | 54 | <i>Villosa vauhaniana</i> | 26 |
| <i>Polygonia progne</i> | 39 | <i>Scopula purata</i> | 56 | <i>Sympetrum obtrusum</i> | 33 | <i>Vireo gilvus</i> | 16 |
| <i>Polyodon spathula</i> | 22 | <i>Seminatrix pygaea</i> | 49 | <i>Synaptomys cooperi</i> | 47 | <i>Waltoncythere acuta</i> | 31 |
| <i>Pontia protodice</i> | 58 | <i>Semiothisa fraserata</i> | 36 | <i>Syngrapha alias</i> | 56 | <i>Zapus hudsonius</i> | 47 |
| <i>Poecetes gramineus</i> | 48 | <i>Semotilus lumbee</i> | 22 | <i>Tachopteryx thoreyi</i> | 33 | <i>Zonitoides patuloides</i> | 28 |
| <i>Porphyryla martinica</i> | 15 | <i>Seratella spiculosa</i> | 31 | <i>Tachycineta bicolor</i> | 48 | | |
| <i>Problema bulenta</i> | 39 | <i>Sistrurus miliarius</i> | 18 | <i>Tadarida brasiliensis</i> | 12 | | |
| <i>Problema byssus</i> | 39 | <i>Sitta canadensis</i> | 48 | <i>Thalassema hartmani</i> | 60 | | |
| <i>Procambarus ancylus</i> | 52 | <i>Skistodiaptomus carolinensis</i> | 31 | <i>Thoburnia hamiltoni</i> | 22 | | |
| <i>Procambarus leptodactylus</i> | 31 | <i>Somatogyrus virginicus</i> | 26 | <i>Thorybes confusus</i> | 58 | | |
| <i>Procambarus medialis</i> | 31 | <i>Sorex dispar</i> | 12 | <i>Thryomanes bewickii altus</i> | 16 | | |
| <i>Procambarus pearsei</i> | 52 | <i>Sorex hoyi winnemana</i> | 12 | <i>Toxlasma lividum</i> | 25 | | |
| <i>Procambarus plumimanus</i> | 31 | <i>Sorex longirostris fisheri</i> | 12 | <i>Toxlasma pullum</i> | 25 | | |
| <i>Progomphus belli</i> | 33 | <i>Sorex palustris punctulatus</i> | 12 | <i>Tremea abdominalis</i> | 54 | | |
| <i>Pseudacris brachyphona</i> | 19 | <i>Spartiniphaga carterae</i> | 36 | <i>Tremea cophysa</i> | 33 | | |
| <i>Pseudacris ornata</i> | 49 | <i>Speyeria diana</i> | 39 | <i>Tremea onusta</i> | 54 | | |
| <i>Psilocnemis leucosticta</i> | 60 | <i>Speyeria idalia</i> | 39 | <i>Trechus balsamensis</i> | 41 | | |
| <i>Pterostichus blanchardi</i> | 60 | <i>Sphingicampa bicolor</i> | 56 | <i>Trechus carolinae</i> | 41 | | |
| <i>Pterostichus carolinus carolinus</i> | 60 | <i>Sphinx frankii</i> | 56 | <i>Trechus luculentus luculentus</i> | 41 | | |
| <i>Pterostichus hypogea</i> | 60 | <i>Sphyrapicus varius</i> | 16 | <i>Trechus mitchellensis</i> | 41 | | |
| <i>Pterostichus lubricus</i> | 60 | <i>Spilosoma dubia</i> | 56 | <i>Trechus novaculosus</i> | 41 | | |
| <i>Pterostichus mancus plethorus</i> | 60 | <i>Stenelmis gammoni</i> | 41 | <i>Trechus roanicus</i> | 41 | | |
| <i>Pterostichus palmi</i> | 60 | <i>Stenotrema depilatum</i> | 28 | <i>Trechus rosenbergi</i> | 41 | | |
| <i>Pterostichus primus</i> | 60 | <i>Sterna antillarum</i> | 48 | <i>Trechus satanicus</i> | 41 | | |
| <i>Pterostichus unicarum</i> | 60 | <i>Sterna caspia</i> | 16 | <i>Trechus subtilis</i> | 41 | | |
| <i>Ptychobranhus fasciolaris</i> | 25 | <i>Sterna dougallii</i> | 16 | <i>Triacanthagyna trifida</i> | 54 | | |
| <i>Pyreferra ceromatica</i> | 36 | <i>Sterna forsteri</i> | 48 | <i>Trichechus manatus</i> | 12 | | |
| <i>Pyrgus wyandot</i> | 39 | <i>Sterna nilotica</i> | 16 | <i>Triodopsis fulcidens</i> | 28 | | |
| <i>Quadrula pustulosa</i> | 25 | <i>Sterna sandvicensis</i> | 48 | <i>Triodopsis soelneri</i> | 28 | | |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|---------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Phyciodes phaon CT: open, often dry areas, mainly on barrier islands; host plants -- fogfruit (<u>Lippia</u>) | Phaon Crescent | SR | | S2? | G5 |
| Poanes aaroni aaroni T: salt or brackish marshes along northern coast and sounds; host plants -- grasses, perhaps saltgrass (<u>Distichlis spicata</u>) | Aaron's Skipper | SR | | S2? | G4T4 |
| Polites mystic P: wet meadows, marshes; host plants -- grasses | Long Dash | SR | | SR | G5 |
| Polygonia faunus M: spruce, fir, or hemlock forests, where mixed with hardwoods; host plants -- varied, but mainly birches, willows, and alders | Green Comma | SR | | S2S3 | G5 |
| Polygonia progne M: rich deciduous forests; host plants -- mainly gooseberries (<u>Ribes</u>), but also on wild azalea (<u>Rhododendron nudiflorum</u>) | Gray Comma | SR | | S1S2 | G5 |
| Problema bulenta T: fresh to brackish marshes with tall grasses in Wilmington area; host plant -- southern wild rice (<u>Zizaniopsis miliacea</u>), probably other tall grasses | Rare Skipper | SR | C2 | S1? | G2G3 |
| Problema byssus C: savannas, marshes, and other high-quality grassy areas; host plants -- grasses | Byssus Skipper | SR | | S2? | G3G4 |
| Pyrgus wyandot M: openings and edges in wooded hilltops; host plants -- Rosaceae, such as wild strawberry (<u>Fragaria</u>) | Wyandot Skipper | SR | C2 | SH | G2Q |
| Satyrium caryaevorum M: deciduous forests; host plants -- primarily hickories (<u>Carya</u>), but other trees also | Hickory Hairstreak | SR | | S1S2 | G4? |
| Satyrium edwardsii MPC: scrubby or xeric oak woods; host plants -- mainly oaks (<u>Quercus</u>) | Edwards' Hairstreak | SR | | S2? | G4 |
| Satyrium kingi MC: forests, often moist, usually near sweetleaf; host plant -- sweetleaf (<u>Symplocos</u>) | King's Hairstreak | SR | | S2S3 | G3G4 |
| Speyeria diana MP: rich woods and adjacent edges and openings; believed extirpated from the lower Piedmont; host plants -- violets (<u>Viola</u>) | Diana | SR | C2 | S3 | G3 |
| Speyeria idalia M: wet or dry meadows, bogs, open hilltops; host plants -- violets (<u>Viola</u>) | Regal Fritillary | SR | C2 | S1 | G3 |

40 NATURAL HERITAGE PROGRAM LIST OF THE RARE ANIMALS OF NORTH CAROLINA

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

INSECTS -- GRASSHOPPERS AND KATYDIDS¹⁶

| | | | | | |
|--|-----------------------------------|----|--|------|----------|
| <i>Eotettix pusillus</i> C: sandhills (wet swales?) | Little Eastern Grasshopper | SR | | S1S3 | G2G3 |
| <i>Melanoplus nubilus</i> C: flatwoods, savannas, sandhills | a short-winged <i>Melanoplus</i> | SR | | S2S3 | G3? |
| <i>Melanoplus nigrescens</i> CT: pinewoods and maritime forests | Black-sided <i>Melanoplus</i> | SR | | S1S3 | GU |
| <i>Melanoplus serrulatus</i> M: valleys and lower slopes, Nantahala Mountains | Serrulate <i>Melanoplus</i> | SR | | S1S3 | G1G3 |
| <i>Melanoplus viridipes eurycerus</i> M: woodlands and forest edges | Green-legged <i>Melanoplus</i> | SR | | S1S3 | G4G5T4T5 |
| <i>Melanoplus angustipennis impiger</i> C: sandhills | Narrow-winged <i>Melanoplus</i> | SR | | S1S3 | GU |
| <i>Melanoplus mirus</i> PC: open woodlands (only known from Weldon) | a short-winged <i>Melanoplus</i> | SR | | S1? | G1? |
| <i>Melanoplus divergens</i> M: glades and balds, 1800' - 4717' | Divergent <i>Melanoplus</i> | SR | | S1S3 | G2G3 |
| <i>Melanoplus cherokee</i> M: woodlands, 1800' - 5100' | Cherokee <i>Melanoplus</i> | SR | | S1S3 | GU |
| <i>Melanoplus decorus</i> C: savannas, flatwoods, low pocosins | a short-winged <i>Melanoplus</i> | SR | | S2S3 | G3? |
| <i>Melanoplus attenuatus</i> C: wet swales in pinewoods | Slender-bodied <i>Melanoplus</i> | SR | | S1S3 | G2G3 |
| <i>Montezumina modesta</i> C: pinewoods and other habitats | Montezuma Katydid | SR | | SU | GU |
| <i>Scudderia septentrionalis</i> M: forests | Northern Bush Katydid | SR | | SH | G3? |
| <i>Stethophyma celata</i> C: bogs, wet tallgrass prairies | Broad-winged Sedge Grasshopper | SR | | S1S2 | G2?Q |
| <i>Trimerotropis saxatalis</i> M: lichen-covered rock outcrops | Rock-loving Grasshopper | SR | | S1S2 | G2G3 |

INSECTS -- BEETLES

| | | | | | |
|---|---------------------------|----|--|------|------|
| <i>Cicindela dorsalis media</i> T: sandy beaches and shores | a tiger beetle | SR | | S2S4 | G4T4 |
| <i>Cicindela lepida</i> T: sand dunes along northern coast | Little White Tiger Beetle | SR | | S1? | G4 |
| <i>Cicindela patruela</i> no location data; sandy soil in open pine or pine oak woods | a tiger beetle | SR | | S2? | G3 |

¹⁶ State ranks are based primarily on the following published sources: Rehn and Hebard, 1910 and 1916; Blatchley, 1920; Hebard, 1935 and 1937; Brimley, 1938; Dakin, et al., 1970; Otte, 1979 and 1981; and Helfer, 1987. Additional information was supplied through NC NHP field surveys and inspection of the insect collections at the N.C. Department of Agriculture and at N.C. State University.

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|-------------------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Lordithon niger no location data | Black Lordithon Rove Beetle | SR | C2 | SH | GH |
| Nicrophorus americanus M: sites with abundance of small vertebrate carrion | American Burying Beetle | SR | E | SH | G1 |
| Stenelmis gammonii M: South Fork New River | Gammon's Stenelmis Riffle Beetle | SR | C2 | S1? | G1G3 |
| Trechus balsamensis M: Plott Balsam mountains (endemic to North Carolina) | a ground beetle | SR | | S1? | G1? |
| Trechus carolinae M: Black Mountains (endemic to North Carolina) | a ground beetle | SR | | S1? | G1? |
| Trechus luculentus luculentus M: mountains of southwestern North Carolina | a ground beetle | SR | | S2? | G2T2? |
| Trechus luculentus unicolor M: apparently the mountains of Graham County | a ground beetle | SR | | S2? | G2T2? |
| Trechus mitchellensis M: Black Mountains (endemic to North Carolina) | a ground beetle | SR | | S1? | G1? |
| Trechus novaculosus M: Great Smoky Mountains National Park (endemic to the park) | a ground beetle | SR | | S2? | G2? |
| Trechus roanicus M: Roan Mountain (endemic to the mountain) | a ground beetle | SR | | S1? | G1? |
| Trechus rosenbergi M: Plott Balsam and Great Balsam mountains (endemic to North Carolina) | a ground beetle | SR | | S1? | G1? |
| Trechus satanicus M: vicinity of Devils Courthouse and Graveyard Fields (endemic to North Carolina) | a ground beetle | SR | | S1? | G1? |
| Trechus subtilis M: mountains of Haywood County (endemic to North Carolina) | a ground beetle | SR | | S1? | G1? |

REPORT OF THE

COMMISSIONER OF

THE STATE

OF THE

LAND OFFICE

FOR THE

YEAR 1911

ALBANY:

1912

PRINTED BY

THE STATE

OF THE

LAND OFFICE

ALBANY:

1912

PRINTED BY

THE STATE

OF THE

LAND OFFICE

ALBANY:

1912

PRINTED BY

THE STATE

OF THE

LAND OFFICE

ALBANY:

1912

PRINTED BY

THE STATE

OF THE

LAND OFFICE

ALBANY:

1912

PRINTED BY

THE STATE

OF THE

LAND OFFICE

ALBANY:

1912

PRINTED BY

THE STATE

OF THE

LAND OFFICE

**SUPPLEMENT TO THE
NATURAL HERITAGE PROGRAM LIST
OF THE RARE ANIMALS OF NORTH CAROLINA**

SUPPLEMENT TO THE
NATURAL HERITAGE PROGRAM LIST
OF THE RARE ANIMALS OF NORTH CAROLINA

NORTH CAROLINA ANIMAL WATCH LIST

The *North Carolina Animal Watch List* includes animals that are rare or uncommon, are not well-studied, or are otherwise threatened with serious decline, but that are not placed on the List of Rare Animals of North Carolina by the NC NHP. Watch List species are additional indicators of significant habitats, and their presence should be considered in planning natural area protection efforts, though obviously with less weight than higher priority rare species and natural communities. The NC NHP maintains paper files on these species, but does not include them in its map and computer files. Animals placed on this list fall into a number of categories, as discussed below. The NC NHP requests additional information about these species in order to clarify their status and reclassify them into other appropriate and more specific categories.

Reasons for the current placement of species on the Watch List rather than at a higher rarity status (Endangered, Threatened, Special Concern, Significantly Rare) are varied. For many of them, the Natural Heritage Program lacks adequate documentation of their historic or present occurrence in North Carolina; this is especially true for invertebrates. Others are known to be rare or uncommon in North Carolina, but may or may not be declining. Some others may not be necessarily rare as yet, but they are undergoing significant losses of their habitat, such as animals of the spruce-fir forest, or are undergoing significant disturbances to their habitat, such as human disturbances to beach-nesting birds.

The following five Watch Categories have been devised to indicate the reasons for each species' current placement(s). These categories and the descriptions of them have been developed by the NC NHP.

A number of species have been placed in two Watch Categories, because it is believed they may be "in trouble" for at least two reasons. For example, the Brown Creeper has a rather small breeding population in the state, in the higher elevations of the mountains, giving it a W2 status. However, as a portion of the breeding population occurs in the spruce-fir zone, which is undergoing degradation of the canopy, it is also given a W5 status, as well.

Watch Category 1 (W1) includes species that are known to be declining in North Carolina, for one reason or another. The distribution or population sizes of such species in the state are fairly well known; loss of habitat is not necessarily a factor. A large number of species are known to be declining in the state, such as Neotropical migrant birds, but the species in this category must have an N.C. Rank of S3 or higher (S2, S1, etc.). Examples: American Black Duck, Least Tern.

Watch Category 2 (W2) includes species that are rare to uncommon in North Carolina, but are not necessarily considered to be declining or otherwise in trouble. Generally speaking, the distribution or population sizes of such species in the state are fairly well known. Examples: Northern Oriole, Coal Skink, Spotted Sunfish.

Watch Category 3 (W3) includes species that are poorly known in North Carolina, but are not necessarily considered to be declining or otherwise in trouble. The distribution and population sizes of such species are not well known; this is especially true for a large number of invertebrates, as well as secretive or nocturnal vertebrates. Examples: Striped Mud Turtle, Southern Appalachian Salamander, Leonard's Skipper.

Watch Category 4 (W4) includes species reported from North Carolina without adequate documentation. These species should be listed at a higher level, if their reported occurrence in North Carolina is true. This category includes sight records of uncertain validity, old and vague reports for which no documentation has appeared, and, in a few cases, more recent reports for which we have not yet received documentation. Examples: Porcupine, Snowshoe Hare, Gray Treefrog (*Hyla versicolor*).

Watch Category 5 (W5) includes species with increasing amounts of threats to its habitat, whether or not populations are known to be declining. These threats can include loss of habitat (e.g., the dramatic loss of maritime forests), degradation of habitat (e.g., pollution and sedimentation of rivers and streams), and disturbance to the habitat (e.g., humans and their vehicles on beaches), among other types of threats. Threats can also include use of pesticides, acid rain, fire suppression, over-collection by zoologists, and varied other factors. Examples: American Kestrel, Pigmy Salamander, Coachwhip.

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

WATCH LIST CODES

- W1 = species known to be declining in the state; may need listing in upcoming years
W2 = species rare to uncommon, but probably not in trouble
W3 = species that is poorly known; perhaps needs listing in upcoming years
W4 = species reported from the state without adequate documentation
W5 = species with increasing amount of threats to its habitat, whether populations are known to be declining or not

MAMMALS

| | | | | |
|---|----------------------|-------|---------|----|
| Erethizon dorsatum M: mixed conifer-hardwood forests | Common Porcupine | W4 | SRSX | G5 |
| Lasius seminolus CP: forages over open areas, often over water (summer) | Seminole Bat | W2,W3 | S3B,SZN | G5 |
| Lepus americanus M: spruce-fir and other high elevation forests | Snowshoe Hare | W4 | SRSX | G5 |
| Martes pennanti M: extensive spruce-fir or mixed spruce-fir-hardwood forests | Fisher | W4 | SRSX | G5 |
| Mustela frenata MPC: forests, brushy areas | Long-tailed Weasel | W3 | S3? | G5 |
| Myotis lucifugus MPC: roosts in buildings (summer), in caves and mines (winter) | Little Brown Myotis | W2,W3 | S3 | G5 |
| Synaptomys cooperi MC: bogs and wet meadows in mountains; early succession wet places in Coastal Plain | Southern Bog Lemming | W2,W5 | S3 | G5 |
| Zapus hudsonius MP: open moist fields and brushy places, usually near water | Meadow Jumping Mouse | W2 | S3 | G5 |

BIRDS¹⁷

| | | | | |
|---|---------------------|----|---------|----|
| Anas discors TC: fresh to slightly brackish marshes, usually at impoundments | Blue-winged Teal | W2 | S1B,S2N | G5 |
| Anas rubripes TC: fresh or brackish marshes, often at impoundments | American Black Duck | W1 | S3B,S4N | G4 |
| Ardea herodias CP: swamps or wet woods, usually remote (nest site) | Great Blue Heron | W2 | S3B,S5N | G5 |
| Asio otus M: high elevation forests in northern mountains | Long-eared Owl | W3 | SUB,SZN | G5 |

¹⁷ Only the breeding season populations are of concern; provinces and habitats are for these populations only.

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|----------------------------|--------|------|---------|--------|
| | | N.C. | U.S. | N.C. | Global |
| <i>Carduelis pinus</i> M: spruce-fir forests | Pine Siskin | W3 | | S3B,S4N | G5 |
| <i>Certhia americana</i> M: high elevation forests, favoring spruce-fir mixed with hardwoods | Brown Creeper | W2,W5 | | S3B,S5N | G5 |
| <i>Charadrius wilsonia</i> T: beaches, island-end flats, estuarine islands | Wilson's Plover | W1,W5 | | S3B,SZN | G5 |
| <i>Empidonax minimus</i> M: open hardwood forests, groves, streamside trees | Least Flycatcher | W2 | | S3B,SZN | G5 |
| <i>Empidonax traillii</i> MP: wet thickets in open country, often along streams in broad valleys | Willow Flycatcher | W2 | | S3B,SZN | G5 |
| <i>Eudocimus albus</i> T: forests or thickets on maritime islands | White Ibis | W2 | | S3B,S3N | G5 |
| <i>Falco sparverius</i> MPC: open country; nests in cavities, even in buildings or poles in cities | American Kestrel | W1,W5 | | S3B,S5N | G5 |
| <i>Icterus galbula</i> MP: hardwood groves or streamside trees, in open country | Northern Oriole | W2 | | S3B,S3N | G5 |
| <i>Ixobrychus exilis</i> TCP: fresh or brackish marshes | Least Bittern | W3 | | S3B,SZN | G5 |
| <i>Limnothlypis swainsonii</i> CMP: forests with dense understory, often with cane in Coastal Plain and rhododendron in mountains | Swainson's Warbler | W2,W5 | | S3B,SZN | G4 |
| <i>Loxia curvirostra</i> M: coniferous forests, preferably spruce-fir | Red Crossbill | W2,W3 | | S3B,S3N | G5 |
| <i>Nyctanassa violacea</i> TCP: swamps; woods or thickets on maritime islands | Yellow-crowned Night-Heron | W2,W3 | | S3B,SZN | G5 |
| <i>Poocetes gramineus</i> M: high elevation pastures and grassy fields | Vesper Sparrow | W1,W5 | | S3B,S2N | G5 |
| <i>Rallus elegans</i> TCP: fresh to slightly brackish marshes | King Rail | W1,W3 | | S3B,S3N | G4Q |
| <i>Sitta canadensis</i> M: high-elevation coniferous forests, preferably spruce-fir | Red-breasted Nuthatch | W2,W5 | | S3B,S4N | G5 |
| <i>Sterna antillarum</i> T: beaches, sand flats, open dunes | Least Tern | W1,W5 | | S3B,SZN | G4 |
| <i>Sterna forsteri</i> T: salt or brackish marshes, nesting on wrack material or matted grasses | Forster's Tern | W2 | | S3B,S5N | G5 |
| <i>Sterna sandvicensis</i> T: sand flats on maritime islands | Sandwich Tern | W2,W5 | | S3B,SZN | G4 |
| <i>Tachycineta bicolor</i> MC: cavities near ponds or other open water | Tree Swallow | W2 | | S2B,S4N | G5 |
| <i>Tyto alba</i> MPCT: extensive open country, nesting in old buildings, silos, large tree cavities | Barn Owl | W2,W3 | | S3B,S3N | G5 |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

| | | | | | |
|--|-----------------------|----|--|---------|----|
| Vermivora chrysoptera | Golden-winged Warbler | W5 | | S3B,SZN | G4 |
| M: old fields and successional hardwoods | | | | | |

REPTILES

| | | | | | |
|--|----------------------------|-------|--|-----|------|
| Apalone spinifera aspera | Gulf Coast Spiny Softshell | W2 | | S3 | G5T? |
| PC: large streams, ponds, and lakes with sandy bottoms | | | | | |
| Eumeces anthracinus | Coal Skink | W2 | | S3 | G5 |
| M: rocky slopes, wooded hillsides, roadbanks | | | | | |
| Kinosternon baurii | Striped Mud Turtle | W3 | | S3? | G5 |
| C: various shallow wet places; ponds, pools, ditches; status poorly known in NC | | | | | |
| Masticophis flagellum | Coachwhip | W2,W5 | | S3 | G5 |
| CTP: dry and sandy woods, mainly in pine/oak sandhills | | | | | |
| Regina rigida | Glossy Crayfish Snake | W2,W3 | | S3 | G5 |
| C: marshes, cypress ponds, other wetlands | | | | | |
| Rhadinaea flavilata | Pine Woods Snake | W2 | | S3 | G4 |
| C: pine flatwoods and other damp woodlands | | | | | |
| Seminatrix pygaea | Black Swamp Snake | W2,W3 | | S3 | G5 |
| C: in lush vegetation of ponds, ditches, or sluggish streams | | | | | |

AMPHIBIANS

| | | | | | |
|--|------------------------------------|-------|--|----|-----|
| Ambystoma mabeei | Mabee's Salamander | W2 | | S3 | G4 |
| C: savannas, wet woods, swamps | | | | | |
| Desmognathus imitator | Imitator Salamander | W2 | | S3 | G3 |
| M: cool, moist high elevation hardwood or spruce-fir forests; nearly confined to Great Smoky Mountains National Park | | | | | |
| Desmognathus wrighti | Pigmy Salamander | W5 | | S3 | G4 |
| M: spruce-fir and other high elevation forests | | | | | |
| Hyla versicolor | Gray Treefrog | W3,W4 | | SU | G5 |
| M: deciduous or mixed forests, often near water; range uncertain in NC | | | | | |
| Plethodon richmondi | Ravine Salamander | W2 | | S3 | G5 |
| M: moist, high-elevation forests, usually on slopes; northern mountains | | | | | |
| Plethodon teyahalee | Southern Appalachian Salamander | W3 | | S3 | G3Q |
| M: moist forests, in southwestern counties | | | | | |
| Pseudacris ornata | Ornate Chorus Frog | W1 | | S3 | G5 |
| C: swamps, savannas, and wooded ponds and pools | | | | | |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

FRESHWATER FISHES

| | | | | | |
|--|--------------------------|-------|--|------|-----|
| Cyprinella labrosa [formerly Hybopsis labrosa] P: Yadkin, Catawba, and Broad drainages | Thicklip Chub | W2 | | S3 | G3 |
| Cyprinella spiloptera [formerly Notropis spilopterus] M: primarily New and French Broad drainages | Spotfin Shiner | W2 | | S2S3 | G5 |
| Elassoma evergladei C: southern Coastal Plain, mainly Waccamaw drainage | Everglades Pygmy Sunfish | W2 | | S3 | G5 |
| Erimystax insignis [formerly Hybopsis insignis] M: primarily French Broad drainage | Blotched Chub | W2 | | S2 | G4? |
| Fundulus confluentus T: fresh to brackish waters along coast | Marsh Killifish | W2 | | S2 | G5? |
| Fundulus luciae TC: ponds and pools along coast | Spotfin Killifish | W2 | | S2 | G4? |
| Lepomis punctatus C: most drainages in southern Coastal Plain | Spotted Sunfish | W2 | | S3 | G5 |
| Moxostoma carinatum M: French Broad, Little Tennessee, and Hiwassee drainages | River Redhorse | W2 | | S2 | G4 |
| Nocomis platyrhynchus M: New drainage | Bigmouth Chub | W2 | | S2 | G4 |
| Notropis maculatus C: southern Coastal Plain drainages | Taillight Shiner | W2 | | S2 | G5 |
| Notropis scabriceps M: New drainage | New River Shiner | W2 | | S3 | G4 |
| Notropis volucellus MPC: scattered drainages in mountains and near Fall Line | Mimic Shiner | W2,W3 | | S3 | G5 |
| Percina gymnocephala M: New drainage | Appalachia Darter | W2 | | S3 | G3 |
| Phenacobius crassilabrum M: Little Tennessee, French Broad, and Toe drainages | Fatlips Minnow | W2 | | S3 | G3 |

MOLLUSKS -- FRESHWATER BIVALVES

| | | | | | |
|--|--------------------|-------|--|----|-----|
| Elliptio cistelliformis C: Neuse, Lumber, Pee Dee drainages; Lake Waccamaw | Box Spike | W3,W5 | | SU | G4Q |
| Elliptio congaraea C: drainages north to the White Oak drainage | Carolina Slabshell | W2,W5 | | S3 | G4 |
| Elliptio producta C: Lake Waccamaw, and perhaps elsewhere; very difficult to identify | Atlantic Spike | W3,W5 | | SU | G4Q |
| Elliptio raveneli PC: most rivers in southern part of state; taxonomic problems | Carolina Spike | W3,W5 | | SU | G3Q |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Elliptio, new species? (sp. 2) C: Lake Waccamaw, Orton Pond, and Lumber River | File Spike | W3 | | SU | G1Q |
| Elliptio, new species? (sp. 3) C: Black River system (Great Coharie Creek) | a bivalve | W3 | | SU | G1Q |

MOLLUSKS -- MARINE BIVALVES

| | | | | | |
|--------------------|-------------------------|----|--|----|------|
| Argopecten gibbus | Atlantic Calico Scallop | W3 | | S? | G? |
| Panopea bitruncata | Atlantic Geoduck | W3 | | S? | G3G4 |
| Paramya subovata | Subovate Softshell | W3 | | S? | G? |

MOLLUSKS -- MARINE GASTROPODS

| | | | | | |
|-----------------------|------------------|----|--|----|----|
| Busycon canaliculatus | Channeled Whelk | W3 | | S? | G? |
| Busycon carica | Knobbed Whelk | W3 | | S? | G? |
| Busycon contrarium | Lightning Whelk | W3 | | S? | G? |
| Detracia clarki | Clark's Melampus | W3 | | S? | G? |
| Neritina usnea | Olive Nerite | W3 | | S? | G? |

ARACHNIDS¹⁸

| | | | | | |
|---|-------------------|----|--|------|------|
| Nesticus bishopi M: on ground in forests (endemic to North Carolina) | a nesticid spider | W3 | | S3? | G3? |
| Nesticus gertschi M: caves; Bat Cave, NC, and in Tennessee | a nesticid spider | W4 | | S1? | G1? |
| Nesticus nasicus M: boulderfields and cove forests (apparently endemic to Jackson county, NC) | a nesticid spider | W3 | | S3? | G3? |
| Nesticus reclusus M: on ground in forests (apparently in Buncombe, McDowell, and Swain counties, NC, and in Tennessee) | a nesticid spider | W3 | | S3? | G3? |
| Nesticus, new species? (sp. 2) M: on ground in forests (only known from Clay County, NC) | a nesticid spider | W3 | | S1S3 | G1G3 |

¹⁸

This arachnid list is a selective one, concentrating on cave and other montane species, and is not intended to be a complete list of the "Watch List" arachnids in the state.

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

CRUSTACEANS

| | | | | | |
|---|------------------------------|-------|--|------|------|
| Cambarus chasmodactylus M: rivers and large streams in New River drainage | New River Crayfish | W5 | | S3? | G4G5 |
| Cambarus howardi M: no habitat or geographic information available | Chattahoochee Crayfish | W3 | | S1S3 | G3 |
| Canthocamptus vagus CP: in benthos of lakes and ponds within swampy environments | Swamp Canthocamptus | W2,W3 | | S3? | G? |
| Cytheridella ilosvayi C: quiet backwaters associated with large coastal rivers | Backwater Ostracod | W3 | | S2? | G? |
| Dactylocythere chelomata M: symbiotic on crayfish in streams and rivers in southwestern mountains | Cherokee Crayfish Ostracod | W2,W3 | | S2? | G? |
| Dactylocythere falcata M: symbiotic on crayfish in Hiwassee and Nolichucky drainages | Hiwassee Crayfish Ostracod | W2,W3 | | S2? | G? |
| Harpagocythere baileyi M: symbiotic on crayfish in Little Tennessee and Savannah drainages (endemic to North Carolina, but likely occurs in SC and GA) | Highlands Crayfish Ostracod | W3 | | S2? | G? |
| Hesperodiaptomus augustaensis P: ephemeral ponds, such as floodplain pools; near Chapel Hill | Augusta Hesperodiaptomus | W3 | | SH | G? |
| Lordocythere petersi M: symbiotic on crayfish in the Hiwassee drainage (record based on a sketch only) | Cumberland Crayfish Ostracod | W4 | | SR | G? |
| Procambarus ancylus C: ditches, streams, and lakes in southeastern corner of the state | Edisto Crayfish | W2 | | S3? | G4G5 |
| Procambarus pearsei C: still-water habitats and burrows in Cape Fear and Pee Dee drainages | Sandhills Crayfish | W2 | | S3? | G4 |
| Stygobromus sp. 1 M: seep below Jones Knob (endemic to North Carolina) | Plott Balsam Sideswimmer | W3 | | S1? | G? |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--------------------------------------|-------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |

MILLIPEDES

| | | | | |
|---|-------------|----|----|----|
| <i>Boraria deturkiana</i> | a millipede | W3 | S? | G? |
| <i>Brachoria eutypa</i> | a millipede | W3 | S? | G? |
| <i>Cleidogono tallapoosa</i> | a millipede | W3 | S? | G? |
| <i>Croatania catawba</i> | a millipede | W3 | S? | G? |
| <i>Deltotaria lea</i> | a millipede | W3 | S? | G? |
| <i>Dixioria dactylifera</i> | a millipede | W3 | S? | G? |
| <i>Dynoria icana</i> | a millipede | W3 | S? | G? |
| <i>Erdelyia saucra</i> | a millipede | W3 | S? | G? |
| <i>Pachydesmus crassicutus incursus</i> | a millipede | W3 | S? | G? |
| <i>Scoterpes</i> sp. 1 | a millipede | W3 | S? | G? |

INSECTS -- DRAGONFLIES AND DAMSELFLIES¹⁹

| | | | | |
|---|------------------------|----|------|------|
| <i>Aeshna verticalis</i> M: marshy ponds | Green-striped Darner | W3 | S3? | G5 |
| <i>Aphylla williamsoni</i> C: lakes and rivers | Two-striped Forceptail | W3 | S3? | G5 |
| <i>Arigomphus pallidus</i> C ponds, lakes, and streams | Gray-green Clubtail | W3 | SU | G5 |
| <i>Arigomphus villosipes</i> MPC: ponds, lakes, slow-flowing streams | Unicorn Clubtail | W3 | S3? | G5 |
| <i>Calopteryx amata</i> M: streams? | Superb Jewelwing | W3 | SU | G3G4 |
| <i>Celithemis monomelaena</i> C: ?? | Black-spotted Skimmer | W3 | SU | G5Q |
| <i>Cordulegaster obliqua</i> M: small forested streams | Arrowhead Spiketail | W3 | SU | G4 |
| <i>Coryphaeschna ingens</i> C: lakes and ponds | Regal Darner | W3 | S3? | G5 |
| <i>Dromogomphus armatus</i> C: pools in slow-flowing rivers | Southeastern Spinyleg | W3 | S3? | G4 |
| <i>Enallagma minusculum</i> ?? | Little Bluet | W3 | SU | GU |
| <i>Epithea spinosa</i> PC: ponds and lakes | Robust Baskettail | W3 | S3? | G3G4 |
| <i>Erpetogomphus designatus</i> PC: streams and rivers | Eastern Ringtail | W3 | SU | G5 |
| <i>Gomphus apomyius</i> PC: spring-fed streams | Banner Clubtail | W3 | S2S4 | G4 |
| <i>Gomphus dilatatus</i> PC: rivers | Blackwater Clubtail | W3 | S3? | G5 |

¹⁹

State ranks are based on information obtained primarily from the following published sources: Brimley, 1938; Needham and Westfall, 1954; Wray, 1967; Cuyler, 1968 and 1984; and Carle, 1982. Additional information was obtained from NC NHP field surveys and from consultation with Duncan Cuyler.

NORTH CAROLINA ANIMAL WATCH LIST

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|----------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Gomphus rogersi M: small spring-fed streams | Sable Clubtail | W3 | | SU | G4 |
| Libellula quadrimaculata M: marshy ponds | Four-spotted Skimmer | W3 | | SA? | G5 |
| Orthemis ferruginea C: ponds and slow-flowing streams | Roseate Skimmer | W3 | | S2S4 | G5 |
| Stylurus spiniceps M: rivers and streams | Arrow Clubtail | W3 | | S3? | G5 |
| Sympetrum corruptum MPC: ponds and lakes | Variegated Meadowfly | W3 | | SU | G5 |
| Tamea abdominalis C: marshy ponds and lakes | Vermilion Glider | W3 | | SU | G5 |
| Tamea onusta M: marshy ponds and lakes | Red-mantled Glider | W3 | | SU | G5 |
| Triacanthagyna trifida C: slow-flowing streams | Phantom Darner | W3 | | S3? | G5 |

INSECTS – SCORPIONFLIES

| | | | | | |
|---|-------------------------|----|--|------|------|
| Brachypanorpa carolinensis M: moist, shady woods | Short-nosed Scorpionfly | W3 | | S2? | G? |
| Merope tuber MP: woods, often near streams | Earwig Scorpionfly | W3 | | S2S3 | G3G5 |

INSECTS – MOTHS²⁰

| | | | | | |
|---|------------------------|----|--|------|--|
| Abrostola ovalis M: high elevation forests with stinging nettles | a looper moth | W3 | | SU | |
| Acronicta lanceolaria C: flatwoods | Lanceolate Dagger Moth | W3 | | SU | |
| Acronicta subochrea MP: unknown | Puzzling Dagger Moth | W3 | | SU | |
| Anomogyna youngii C: pocosins and flatwoods | Young's Anomogyna | W3 | | S3S4 | |
| Anticlea multifurcata M: unknown | Many-lined Carpet | W3 | | SU | |
| Apantesis carlotta C: open grasslands | Carlotta's Tiger Moth | W3 | | SU | |
| Argyrostroma erasa C: savannas and flatwoods | an owlet moth | W3 | | S3? | |

²⁰ State ranks are based primarily on information provided by NC NHP field surveys and from consultations with Dale Schweitzer and J.B. Sullivan.

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|---------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Arugisa watsoni CP: sedgy glades | Watson's Arugisa | W3 | | SU | |
| Bomolocha appalachiensis M: unknown | Appalachian Bomolocha | W3 | | SU | GU |
| Caripeta aretaria MPC: pine forests | Southern Pine Looper | W3 | | S3? | |
| Catocala sappho P: bottomland hardwoods with hickories | Sappho Underwing | W3 | | SU | |
| Chrysanympa formosa MP: blueberry and huckleberry thickets | Formosa Looper Moth | W3 | | S3S4 | |
| Cleora projecta C: pocosins, bogs, flatwoods | Projecta Gray | W3 | | S3? | |
| Dasychira leucophaea C: flatwoods | a tussock moth | W3 | | SU | |
| Euxoa declarata M: unknown | a dart moth | W3 | | SU | G4G5 |
| Exyra fax (= rolandiana) CP: wetlands with purple pitcher plants | Purple Pitcher Plant Moth | W3 | | S3? | |
| Exyra ridingsii (= nigrocaput) CP: wetlands with yellow pitcher plants | Yellow Pitcher Plant Moth | W3 | | S3S4 | |
| Faronta rubripennis T: beach dunes | Pink Streak Moth | W3 | | SU | G3G4 |
| Grammia phyllira C: open sandy areas | Phyllira Tiger Moth | W3 | | SU | |
| Heliomata infulata CPM: unknown | Rare Spring Moth | W3 | | SU | GU |
| Idaea violacearia C: dunes and dry sandy woods | Violaceous Wave | W3 | | SU | G4 |
| Isoparce cupressi C: cypress swamps | Cypress Sphinx | W3 | | S3S4 | G4 |
| Itame varadaria C: salt marshes and other areas with Baccharis | Southern Itame | W3 | | SU | |
| Lepipolys perscripta C: open areas with toad-flax | an owlet moth | W3 | | SU | |
| Lithacodia n. sp. C: pocosins and other wetlands | a new bird-dropping moth | W3 | | SU | GU |
| Lithophane lepida adipel C: unknown | a pinion moth | W3 | | SU | |
| Macrochilo santerivalis T: coastal marshes | an owlet moth | W3 | | SU | GU |
| Metalepsis fishii C: blueberry thickets | an owlet moth | W3 | | SU | G4G5 |
| Morrisonia n. sp. C: pocosins | a new woodgrain moth | W3 | | SU | GU |
| Nemoria elfa C: coastal plain forests | Elfin Emerald | W3 | | S2S4 | |
| New Noctuid Genus 1 (reddish cane borer) C: canebrakes | a new borer moth | W3 | | S3? | GU |

NORTH CAROLINA ANIMAL WATCH LIST

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|------------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Paonias astylus C?: pocosins, flatwoods, and heath thickets | Huckleberry Sphinx | W3 | | S3S4 | G4 |
| Papaipema appassionata C: wetlands with pitcher plants | Pitcher Plant Borer Moth | W3 | | SU | G4 |
| Papaipema baptisiae P: glades and barrens with Baptisia or dogbane | Baptisia Borer | W3 | | SU | |
| Papaipema lysimachiae M: rich woods with loosestrifes | Loosestrife Borer Moth | W3 | | SU | |
| Papaipema sp. 3 C: canebrakes | Southeastern Cane Borer Moth | W3 | | S3? | G4? |
| Pyreffera pettiti CP: sandhills and glades | a sallow moth | W3 | | SU | |
| Schinia carolinensis C: flatwoods | Carolina Schinia | W3 | | SU | |
| Schinia inclara C: unknown | a flower moth | W3 | | SU | |
| Scopula aemulata C: unknown | a wave moth | W3 | | SU | |
| Scopula cacuminaria no location data | Frosted Tan Wave | W3 | | SU | |
| Scopula purata C: open bogs and other acidic wetlands | Chalky Wave | W3 | | S3? | G4 |
| Selenia kentaria P: mafic glades | Kent's Selenia | W3 | | SU | |
| Sphingicampa bicolor C?: habitats with honey locust | Honey Locust Moth | W3 | | S3S4 | |
| Sphinx franckii P?: woodlands with ash | Franck's Sphinx | W3 | | SU | G4 |
| Sphinx gordius C: pocosins and flatwoods | Gordian Sphinx | W3 | | S3? | |
| Spilosoma dubia C: pocosins, flatwoods, savannas, and other Coastal Plain wetlands | Dubious Tiger Moth | W3 | | S3S4 | |
| Stiria rugifrons C?: sandhills | an owlet moth | W3 | | SU | |
| Syngrapha alias M: spruce-fir forests | a looper moth | W3 | | SU | G5 |
| Tarachidia parvula C: cypress swamps? | a bird-dropping moth | W3 | | SU | |
| Tolyte laricis C?: unknown | Larch Tolyte | W3 | | SU | |
| Tolyte minta C: longleaf pine habitats | Southern Tolyte | W3 | | SU | |
| Ulolonche modesta C: unknown | Modest Quaker Moth | W3 | | SU | |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|--------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Zale calycanthata C: oak forests | Double-banded Zale | W3 | | S3? | |
| Zale nr. obliqua C: longleaf pine habitats | a new owlet moth | W3 | | SU | |
| Zanclognatha gypsalis C: swamp forests | an owlet moth | W3 | | SU | |
| Zanclognatha sp. 1 M: dry pitch pine forests | a new owlet moth | W3 | | SU | GU |
| Zanclognatha theralis C: swamp forests | an owlet moth | W3 | | SU | |

INSECTS -- BUTTERFLIES

| | | | | | |
|---|---------------------------|-------|--|------|------|
| Amblyscirtes carolina CP: wet woods near cane; host plant -- cane (<u>Arundinaria</u>) | Carolina Roadside Skipper | W2,W3 | | S3S4 | G4 |
| Amblyscirtes vialis MPC: woods, wood margins; host plants -- grasses | Roadside Skipper | W2,W3 | | S3S4 | G5 |
| Asterocampa clyton PC: deciduous woods with hackberries; host plants -- hackberries (<u>Celtis</u>) | Tawny Emperor | W2,W3 | | S3S4 | G5 |
| Enodia anhedon M: moist deciduous woods, especially near streams; host plants -- grasses | Northern Pearly Eye | W3 | | S3S4 | G5 |
| Heliconius charitonius tuckeri T: maritime forests and edges; host plants -- passion-flowers (<u>Passiflora</u> spp.) | Zebra | W3 | | SU | G5T? |
| Hesperia leonardus MP: wooded borders and openings, brushy fields; host plants -- grasses | Leonard's Skipper | W3 | | S3S4 | G4 |
| Hesperia metea PC: dry barren sites, such as pine/oak sandhills and upland woods; host plants -- mainly broomsedge (<u>Andropogon</u>) | Cobweb Skipper | W2,W3 | | S3? | G4G5 |
| Incisalia augustinus MPC: dry acidic areas with an abundance of ericads, such as pine/oak heaths; host plants -- ericaceous shrubs | Brown Elfin | W3 | | S3? | G5 |
| Megathymus yuccae C: dunes, flatwoods, old fields, and other places near yuccas; host plants -- <u>Yucca</u> species | Yucca Skipper | W3 | | S3S4 | G4 |
| Pieris virginianensis M: rich deciduous woods or cove forests, often near streams; host plants -- toothworts (<u>Cardamine</u>) | West Virginia White | W3 | | S3S4 | G4 |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|----------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Pontia protodice MPC: fields, brushy areas, wooded borders; host plants -- mustard species (Family <u>Brassicaceae</u>) | Checkered White | W1,W3 | | S2S3 | G5 |
| Thorybes confusus CP: woodland borders and openings, brushy fields; host plants -- legumes | Confused Cloudy Wing | W3 | | S3? | G4 |

INSECTS -- GRASSHOPPERS AND KATYDIDS²¹

| | | | | | |
|--|---------------------------------------|----|--|----|------|
| Arphia granulata C: flatwoods, sandhills | Southern Yellow-winged Grasshopper | W3 | | SU | |
| Atlanticus gibbosus C: oak and pine forests | Gibbous Shield-back Katydid | W3 | | SU | |
| Belocephalus subapterus C: flatwoods and other shrubby areas | Half-winged Cone Head Katydid | W3 | | SU | |
| Dendrotettix australis M: forests | Southern Dendrotettix | W3 | | SU | |
| Dendrotettix zimmermanni M: forests | Zimmermann's Dendrotettix | W3 | | SU | |
| Hesperotettix viridis brevipennis C: grasslands, forest edges | Green-striped Grasshopper | W3 | | SU | |
| Hubbellia marginifera C: pinewoods | Hubbell's Shield-back Katydid | W3 | | SU | |
| Inscudderia walkeri C: cypress stands | Walker's Cypress Katydid | W3 | | SU | |
| Melanoplus strumosus C: sandhills | Swollen Melanoplus | W3 | | SU | G4G5 |
| Melanoplus tribulus M: glades and open woodlands | a short-winged Melanoplus | W3 | | SU | G4G5 |
| Melanoplus propinquus C: savannas and other wooded grasslands | Southern Red-legged Melanoplus | W3 | | SU | G4G5 |
| Melanoplus impudicus M: barrens and glades | Immodest Melanoplus | W3 | | SU | GU |
| Melanoplus decoratus M: dry woodlands | Decorated Melanoplus | W3 | | SU | GU |
| Melanoplus similis M: open woodlands | a short-winged Melanoplus | W3 | | SU | G5? |
| Melanoplus carnegiei M: open pine and oak forests | Carnegie's Melanoplus | W3 | | SU | GU |
| Melanoplus hubbelli M: dry woodlands, including second growth | Hubbell's Melanoplus | W3 | | SU | G3G4 |

²¹ State ranks are based primarily on the following published sources: Rehn and Hebard, 1910 and 1916; Blatchley, 1920; Hebard, 1935 and 1937; Brimley, 1938; Dakin, et al., 1970; Otte, 1979 and 1981; and Helfer, 1987. Additional information was supplied through NC NHP field surveys and inspection of the insect collections at the N.C. Department of Agriculture and at N.C. State University.

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|--|--|--------|------|------|----------|
| | | N.C. | U.S. | N.C. | Global |
| Melanoplus celatus M: undescribed, 1200' - 4000' | a short-winged Melanoplus | W3 | | SU | GU |
| Melanoplus acrophilus acrophilus M: shrubby areas, 3600' - >5000' | a short-winged Melanoplus | W3 | | SU | G2G3T2T3 |
| Melanoplus deceptus M: balds?, 4000' - 5700' | Deceptive Melanoplus | W3 | | SU | GU |
| Melanoplus delaware M: open woodlands and barrens | Delaware Melanoplus | W3 | | SU | GU |
| Mermiria bivittata T: sandhills, wooded grasslands | Two-striped Mermiria | W3 | | SU | |
| Mermiria intertexta T: marshes | Intertexta Mermiria | W3 | | SU | |
| Neoconocephalus velox C: shrubby undergrowth in pinewoods | Swift-flying Cone Head Katydid | W3 | | SU | |
| Opshomala vitripennis C: marshes | Glassy-winged Toothpick Grasshopper | W3 | | SU | GU |
| Orchelimum superbum C: bogs and tidal marshes | Superb Meadow Katydid | W3 | | SU | |
| Romalea guttata P: open woods and roadsides | Eastern Lubber Grasshopper | W3 | | SU | G5 |
| Scudderella curvicauda laticauda C: savannas, flatwoods, open pinewoods | Broad-tailed Bush Katydid | W3 | | SU | |

INSECTS -- BEETLES

| | | | | | |
|--------------------------------|----------------------------|----|--|----|----|
| Adelopsis mitchellensis | a small carrion beetle | W3 | | S? | G? |
| Agathidium sp 1 | a round fungus beetle | W3 | | S? | G? |
| Aglenus brunneus | a cylindrical bark beetle | W3 | | S? | G? |
| Agonum gracilentum | a ground beetle | W3 | | S? | G? |
| Anillinus carolinae | a ground beetle | W3 | | S? | G? |
| Anillinus sp 1A | a ground beetle | W3 | | S? | G? |
| Anillinus sp 2 [from NC, sp B] | a ground beetle | W3 | | S? | G? |
| Anillinus sp 4 [from NC, sp D] | a carabid beetle | W3 | | S? | G? |
| Arianops alticola | a short-winged mold beetle | W3 | | S? | G? |
| Arianops barbata | a short-winged mold beetle | W3 | | S? | G? |
| Arianops coweeti | a short-winged mold beetle | W3 | | S? | G? |
| Arianops fovealis | a short-winged mold beetle | W3 | | S? | G? |
| Arianops gigantea | a short-winged mold beetle | W3 | | S? | G? |
| Arianops laminata | a short-winged mold beetle | W3 | | S? | G? |
| Arianops nantahalae joanna | a short-winged mold beetle | W3 | | S? | G? |
| Arianops nantahalae nantahalae | a short-winged mold beetle | W3 | | S? | G? |
| Arianops nodosa | a short-winged mold beetle | W3 | | S? | G? |
| Arianops norithe | a short-winged mold beetle | W3 | | S? | G? |
| Arianops parki | a short-winged mold beetle | W3 | | S? | G? |
| Arianops plectrops | a short-winged mold beetle | W3 | | S? | G? |
| Arianops spinicollis | a short-winged mold beetle | W3 | | S? | G? |
| Arianops teyahalee | a short-winged mold beetle | W3 | | S? | G? |
| Arianops thornei | a short-winged mold beetle | W3 | | S? | G? |

| Scientific Name Province: Habitat | Common Name | Status | | Rank | |
|---|----------------------------|--------|------|------|--------|
| | | N.C. | U.S. | N.C. | Global |
| Arianops unicoi | a short-winged mold beetle | W3 | | S? | G? |
| Cicindela abdominalis | a tiger beetle | W3 | | SU | G5 |
| C: sandy habitats, such as xeric pine forests | | | | | |
| Cicindela ancocisconensis | a tiger beetle | W3 | | S3? | G3 |
| M: high elevation forests | | | | | |
| Cicindela dorsalis media | White Tiger Beetle | W3 | | SU | G4T4 |
| T: sandy beaches and shores | | | | | |
| Cicindela purpurea | a tiger beetle | W3 | | S3? | G5 |
| Cicindela splendida | a tiger beetle | W3 | | S3S4 | G5 |
| MP: clay or sandy-clay soil habitats | | | | | |
| Ctenisus sp A | a short-winged mold beetle | W3 | | S? | G? |
| Hetaerius sp A | Hister Beetle | W3 | | S? | G? |
| Lathrobium shermani | a rove beetle | W3 | | S? | G? |
| Lichnanthe vulpina | a scarab beetle | W3 | | S? | G? |
| Limulodes paradoxus | Horse-shoe Crab Beetle | W3 | | S? | G? |
| Maronetus sp A | a carabid beetle | W3 | | S? | G? |
| Maronetus tenuis | a ground beetle | W3 | | S? | G? |
| Maronetus unistriatus | a ground beetle | W3 | | S? | G? |
| Mayetia bulla | a short-winged mold beetle | W3 | | S? | G? |
| Mayetia pearsei | a short-winged mold beetle | W3 | | S? | G? |
| Mayetia sp 2 [from NC, sp] | a short-winged mold beetle | W3 | | S? | G? |
| Mayetia sp 3 [from NC, sp] | a short-winged mold beetle | W3 | | S? | G? |
| Mayetia sp A | a short-winged mold beetle | W3 | | S? | G? |
| Nebria appalachia | a ground beetle | W3 | | S? | G? |
| Pilopius sp A | a short-winged mold beetle | W3 | | S? | G? |
| Psilocnemis leucosticta | a scarab beetle | W3 | | S? | G? |
| Pterostichus blanchardi | a ground beetle | W3 | | S? | G? |
| Pterostichus carolinus carolinus | a ground beetle | W3 | | S? | G? |
| Pterostichus carolinus fumorum | a ground beetle | W3 | | S? | G? |
| Pterostichus hypogea | a ground beetle | W3 | | S? | G? |
| Pterostichus lubricus | a ground beetle | W3 | | S? | G? |
| Pterostichus mancus plethorus | a ground beetle | W3 | | S? | G? |
| Pterostichus palmi | a ground beetle | W3 | | S? | G? |
| Pterostichus primus | a ground beetle | W3 | | S? | G? |
| Pterostichus unicarum | a ground beetle | W3 | | S? | G? |
| Scaphinotus guyoti | a ground beetle | W3 | | S? | G? |
| Scaphinotus violaceus | a ground beetle | W3 | | S? | G? |

INSECTS -- ANTS

| | | | | | |
|--------------------------|---------------------|----|--|----|----|
| Amblyopone trigonignatha | an ant | W3 | | S? | G? |
| Formica exsectoides | Alleghany Mound Ant | W3 | | S? | G? |

ANNELIDS

| | | | | | |
|---------------------------|-------------------------|----|--|----|----|
| Chaetopterus variopedatus | Parchment Tube Worm | W3 | | S? | G? |
| Notomastus lobatus | a polychaete worm | W3 | | S? | G? |
| Thalassema hartmani | Hartman's Echiurid Worm | W3 | | S? | G? |

POTENTIAL NEW TO NORTH CAROLINA ANIMALS

The following list contains species of well-known animal groups that are not currently known to occur in North Carolina, or those species not currently known to breed in North Carolina, but which are considered to have some possibility of being found to occur on a regular basis or to breed in the state. The list is based on the species' currently known range and habitat preferences. Nearly all are species that occur in the adjacent states of South Carolina, Georgia, Tennessee, or Virginia, in habitats (or drainages) at least relatively similar to habitats known to exist in North Carolina. The purpose of this list is to encourage and challenge field workers to find new state occurrences and new breeding records. This list should give field investigators an idea of some of the species that may be regular components of North Carolina's fauna. (Species that might occur as single record accidentals, such as Western species of birds or Gulf Coast butterflies, are generally not included.) While some of these species may have relatively remote chances of being found in North Carolina, the likelihood of finding new state records is greatly increased by being aware of the possibilities and by species-directed searching. Our knowledge of many of our animal groups is still quite imperfect, especially invertebrate groups such as butterflies. Many natural areas are being destroyed before they can be investigated, and it can be assumed that a number of native species have been extirpated from North Carolina before they were ever documented as occurring in the state.

Following each species is the North Carolina province in which the species is considered most likely to be found occurring or found breeding. Where possible, a description of the typical habitat of the species in the vicinity of North Carolina is also given. Sometimes, the nearest known occurrence(s) to North Carolina are also listed, with the distance from North Carolina in number of counties in brackets. For instance, [1] indicates that the species has been reported from a county immediately adjacent to North Carolina; [5] indicates that the species has been reported from a county five counties away from the North Carolina border. An average county width in and around North Carolina is about 25 miles, so [5] indicates an approximate distance from North Carolina of 100-125 miles. It should be obvious that a species known to occur south only to the Virginia mountains would be best searched for in North Carolina counties near the Virginia line, such as Ashe, Alleghany, and Watauga. Likewise, Coastal Plain species occurring north to South Carolina are most likely searched for in counties along the southern border, such as Brunswick and Columbus.

The following additional symbols are used:

- * May have occurred in North Carolina (no conclusive records) with the remote possibility of being conclusively found in the state
- + Known to occur in the state on a regular basis (as an Element Occurrence) but not known conclusively to breed, though suspected or assumed to breed; conclusive breeding records lacking

MAMMALS

There are very few terrestrial mammals that could be discovered for the first time in North Carolina; three of them may have occurred in the mountains many decades or centuries ago, but reports are fuzzy or second-hand. Most of the potential new-to-North Carolina mammals are cetaceans. A few cetaceans probably occur regularly in the Atlantic off North Carolina, but far offshore; however, most of them are primarily either subtropical or Arctic inhabitants and would be considered accidental in the state.

Balaenoptera edeni -- Bryde's Whale

T: ocean, primarily in subtropical waters; VA (one record), GA

Balaenoptera musculus -- Blue Whale

T: ocean, entire north Atlantic, far offshore; MD (one record)

Erethizon dorsatum -- Porcupine *

M: forests; PA, and possibly now in MD; formerly in VA

Lagenorhynchus acutus -- Atlantic White-sided Dolphin

T: ocean, in cold waters north of NC; VA (three recent records)

Lasiurus intermedius -- Northern Yellow Bat

C: wooded areas near water; SC [2], VA [1]; the single record from VA indicates the species might be accidental there

Lepus americanus -- Snowshoe Hare *

M: high elevation forests and thickets, mainly in northern mts.; VA, MD -- perhaps extirpated in both states now

Martes pennanti -- Fisher *

M: high elevation, mixed forests; occurred formerly in VA, WV, but native populations apparently extirpated; recently re-introduced in WV and recently seen also in VA and MD, with the sightings likely from the re-introduced population

Peponocephala electra -- Melon-headed Whale

T: ocean, in subtropical waters; MD (one record)

Phoca groenlandica -- Harp Seal

T: ocean, in cold waters north of NC; VA (one record)

Stenella clymene -- Short-snouted Spinner Dolphin

T: ocean, in subtropical waters; FL, NJ

BIRDS

The species below are all considered to be potential breeders in North Carolina; some may possibly be breeding already. All have been recorded from the state on numerous occasions; those marked by (+) are known to occur in summer in the state to an extent and probably are nesting, but conclusive evidence is lacking.

Accipiter gentilis -- Northern Goshawk

M: extensive forests, mainly at high elevations; MD, WV, VA ?; a few summer records for the NC mountains [see main list]

Ammodramus caudatus -- Sharp-tailed Sparrow

T: salt or brackish marshes; VA [3]; some references list NC in the breeding range -- this is erroneous; there have been a few summer reports, but some may be erroneous or of late migrating individuals

Asio flammeus -- Short-eared Owl

T: extensive brackish marshes; MD ?, VA formerly, and might still nest there; several summer records for the NC coastal marshes

Asio otus -- Long-eared Owl

M: conifers or mixed woods at high elevations in northern mountains; VA [2]; one or two summer reports from the NC mountains, but without visual confirmation [see watch list]

Carpodacus purpureus -- Purple Finch

M: spruce-fir forests; VA [1] (Mt. Rogers); one or two summer records for the NC mountains

Catharus guttatus -- Hermit Thrush +

[breeding evidence needed]; no active nest yet found, but probably nests [see main list]

Catharus ustulatus -- Swainson's Thrush

M: spruce-fir forests, mainly in northern mountains; VA [1] (Mt. Rogers); possibly nested in NC mountains in 19th Century, but no summer records in many decades

Cistothorus platensis -- Sedge Wren

T: brackish marshes; VA [3] (northern portion of Chesapeake Bay); several summer records from NC, mainly in brackish marshes, but these might be of wandering birds or migrants

Contopus borealis -- Olive-sided Flycatcher +

[breeding records for TN side of Great Smoky Mountains NP]; no active nest has been found in NC [see main list]

Dendroica magnolia -- Magnolia Warbler +

[breeding evidence needed]; no active nest yet found, but probably nests [see main list]

Elanoides forficatus -- American Swallow-tailed Kite

C: swamps, river bottoms; SC [2] (Santee River); numerous summer records, but all believed to be of visitors/postbreeders

Empidonax flaviventris -- Yellow-bellied Flycatcher

M: high elevation spruce-fir, usually where stunted or young; VA [1] (Mt. Rogers); two summer reports from NC mountains

Ictinia mississippiensis -- Mississippi Kite +

[breeding evidence needed]; no active nest yet found, but believed to nest along Roanoke River [see main list]

Melospiza georgiana -- Swamp Sparrow

M: bogs at high elevation; VA [5-6]; no summer reports for NC

Mycteria americana -- Wood Stork

C: swamps, with open water somewhat nearby; SC [4]; no reports from NC suggestive of breeding in the state [see main list]

Oporornis philadelphia -- Mourning Warbler

M: thickets, brushy places, clearings; VA [5]; a pair believed to have nested in mid-1980s near Great Smoky Mountains N.P. in NC is only summer record for the state

Passerculus sandwichensis -- Savannah Sparrow +

[breeding evidence needed]; VA [1]; believed to be nesting in Alleghany and Ashe counties, but no active nest has yet to be found [see main list]

Seiurus noveboracensis -- Northern Waterthrush

M: bogs where spruce-fir is present; VA [5-6], plus two reports from Mt. Rogers; no summer reports for NC

Vermivora pinus -- Blue-winged Warbler +

[breeding evidence needed]; no active nest yet found, but presumed to breed in southwestern counties [see main list]

Vermivora ruficapilla -- Nashville Warbler

M: spruce-fir forests, mainly along margins or in young or stunted trees; VA [6], but also a report from Mt. Rogers; no summer reports for NC

REPTILES

Graptemys geographica -- Map Turtle

M: large rivers in the Tennessee drainage; VA [2], TN [1]

Graptemys pseudogeographica -- False Map Turtle

M: large rivers in the Tennessee drainage; TN [1-2]

Nerodia cyclopion -- Green Water Snake

C: streams, lakes, ponds, marshes; SC [2]

Ophisaurus compressus -- Island Glass Lizard

TC: maritime or other coastal forests, in dry habitats; SC [2]

Trionyx ferox -- Florida Softshell

C: lakes, ponds, rivers; SC [3]

Trionyx muticus -- Smooth Softshell

M: large rivers in the Tennessee drainage; TN [2?]

AMPHIBIANS

Ambystoma cingulatum -- Flatwoods Salamander

C: flatwoods, bottomlands, swamps; SC [2-3]

Ambystoma jeffersonianum -- Jefferson Salamander

M: low woods, bottomlands; VA [2]

Ambystoma texanum -- Smallmouth Salamander

M: moist forests; TN [?]; ranges east to central TN

Eurycea lucifuga -- Cave Salamander

M: limestone caves and ledges; TN [1], VA [2]

Gyrinophilus palleucus -- Tennessee Cave Salamander

M: caves, presumably in limestone areas; TN [1-2]

Plethodon hoffmani -- Valley and Ridge Salamander

M: montane forests; VA [3-4]

Plethodon hubrichti -- Peaks of Otter Salamander

M: cool moist woods; VA [2]; endemic to Peaks of Otter Mountain

Plethodon websteri -- Webster's Salamander

P: moist forests with steep north-facing slopes; SC [4]

Pseudobranchius striatus -- Dwarf Siren

C: swamps, ponds, other sluggish freshwater habitats; SC [2-3]

Rana grylio -- Pig Frog

C: lakes, ponds, marshes; SC [2]

FISHES

The absence in North Carolina of the very large number of Tennessee fishes occurring just over the state line is not an artifact of collecting intensity. Much sampling has occurred in the state near the Tennessee border for such species. The streams where they occur do extend into North Carolina; however, most of the streams where the fishes occur in Tennessee become high gradient near the border, with riffles and rapids preventing the fishes from occurring in North Carolina. A few reservoirs along the state line also block some species from entering the state. On the other hand, there are a number of species that occur within one or two counties of North Carolina that are not listed here; these are fishes in drainages that do not reach North Carolina, particularly the Chattahoochee and the Coosa in Georgia, the Clinch in Tennessee and Virginia, and the James in Virginia.

Alosa chrysochloris -- Skipjack Herring

M: Tennessee drainages; TN [1]

Cottus baileyi -- Black Sculpin

M: Tennessee drainages; TN [1], VA [1-2]

Etheostoma caeruleum -- Rainbow Darter

M: Tennessee drainages; TN [1]

Etheostoma camurum -- Bluebreast Darter

M: Tennessee drainages; TN [1]

Etheostoma cinereum -- Ashy Darter

M: Tennessee drainages; TN [1-2]

Etheostoma hopkinsi -- Christmas Darter

M: Savannah drainage; SC [1-2]

Etheostoma kennicotti -- Stripetail Darter

M: Tennessee drainages; TN [1]

Etheostoma osburni -- Finescale Saddled Darter

M: New drainage; VA [2]

Fundulus catenatus -- Northern Studfish

M: Tennessee drainages; TN [1]

Fundulus notatus -- Blackstripe Topminnow

M: Tennessee drainages; TN [1]

Fundulus olivaceus -- Blackspotted Topminnow

M: Tennessee drainages; TN [1]

Gasterosteus aculeatus -- Threespine Stickleback

T: tidal waters; VA [2?]

Hemitremia flammea -- Flame Chub

M: Tennessee drainages; TN [1]

Hybognathus nuchalis -- Central Silvery Minnow

M: Tennessee drainages; TN [2-3]

Hybopsis aestivalis -- Speckled Chub

M: Tennessee drainages; TN [1-2]

- Hybopsis dissimilis* -- Streamline Chub
 M: Tennessee drainages; TN [1-2]
Hybopsis storeriana -- Silver Chub
 M: Tennessee drainages; TN [2-3]
Hypentelium etowanum -- Alabama Hog Sucker
 M: Tennessee drainages; TN [1], GA [1]
Ichthyomyzon castaneus -- Chestnut Lamprey
 M: Tennessee drainages; TN [1]
Ichthyomyzon gagei -- Southern Brook Lamprey
 M: Tennessee drainages; TN [1-2]
Ictalurus furcatus -- Blue Catfish
 M: Tennessee drainages; TN [1]
Labidesthes sicculus -- Brook Silverside
 M: Tennessee drainages; TN [1-2]
Lepisosteus oculatus -- Spotted Gar
 M: Tennessee drainages; TN [1-2]
Notropis ariommus -- Popeye Shiner
 M: Tennessee drainages; TN [1-2]
Notropis atherinoides -- Emerald Shiner
 M: Tennessee drainages; TN [1]
Notropis lirus -- Mountain Shiner
 M: Tennessee drainages; TN [1]
Notropis stramineus -- Sand Shiner
 M: Tennessee drainages; TN [1]
Noturus baileyi -- Smoky Madtom
 M: Tennessee drainages; TN [1]; apparently endemic to Abrams Creek in Great Smoky Mountains N.P.
Noturus leptacanthus -- Speckled Madtom
 M: Savannah drainage; SC [1]
Percina nigrofasciata -- Blackbanded Darter
 M: Savannah drainage; SC [1]
Percina rex -- Roanoke Logperch
 P: Roanoke and Chowan drainages; VA [1-2]
Percina shumardi -- River Darter
 M: Tennessee drainages; TN [1-2]
Phenacobius uranops -- Stargazing Minnow
 M: Tennessee drainages; TN [1]
Pimephales promelas -- Fathead Minnow
 M: Tennessee drainages; TN [1], VA [1]
Pimephales vigilax -- Bullhead Minnow
 M: Tennessee drainages; TN [1-2]
Scaphirhynchus platyrhynchus -- Shovelnose Sturgeon
 M: Tennessee drainages; TN [1-2]

INSECTS – BUTTERFLIES

A species marked with the @ symbol is considered to be a Visitor, with breeding occurring elsewhere. Most of these breed to the south of North Carolina and would be expected to occur as a visitor in the warmer months. Otherwise, all other species on this list are presumed to breed in adjacent states.

There are numerous butterfly species whose presently known range extends south in the mountains only to Virginia. Some of these certainly must occur in the northern mountain counties of North Carolina, particularly those not restricted to habitats rare or absent in the state (e.g., shale barrens or limestone outcrops). North Carolina has apparently not had thorough statewide coverage of its Lepidopteran fauna, nor has a book or treatise been published on that fauna of the state. A 1989

unpublished distribution atlas of the Carolinas shows major gaps in county records in North Carolina for the common species, much less the uncommon ones. In summary, there is much to be learned about butterfly distribution in the state, including new species to be added to the state list.

Amblyscirtes belli -- Bell's Roadside Skipper

MP: wooded edges and openings, wooded creeks; host plant -- wild oats (*Uniola latifolia*); SC [1] (Oconee and Pickens counties)

Boloria selene -- Silver-bordered Fritillary

M: wet meadows, bogs, marshes; host plant -- violets (*Viola*) and other species; VA [2-3]

Brephidium isophthalma pseudofea -- Eastern Pygmy Blue

T: tidal flats and marshes; host plant -- glassworts (*Salicornia*), possibly saltwort (*Batis maritima*); SC [3]

Calephelis borealis -- Northern Metalmark

M: rocky areas near shale, serpentine, or limestone, usually near streams; host plant -- ragworts (*Senecio*), possibly fleabanes (*Erigeron*); VA [1-2]

Chlosyne gorgone -- Gorgone Checkerspot

MPC: open woods, edges, and clearings; host plant -- mostly composites, such as sunflowers (*Helianthus*); SC [1] (Oconee and Pickens counties), GA [1] (Rabun and Union counties)

Chlosyne harrisii -- Harris' Checkerspot

M: marshes, damp meadows, and other wet brushy places; host plant -- flat-topped white aster (*Aster umbellatus*); WV [6-7].

Colias interior -- Pink-edged Sulphur

M: high elevation areas with acidic soils, such as wood margins, openings, and heath balds; host plant -- blueberries (*Vaccinium*); VA [5?]

Erynnis lucilius -- Columbine Dusky Wing

M: rich, rocky woods, ravines, and wooded edges; host plant -- wild columbine (*Aquilegia canadensis*); VA [1?]

Erynnis persius -- Persius Dusky Wing

M: openings in cool forests, fields or bogs near woods; host plant -- lupine (*Lupinus perennis*); VA [1]

Euchloe olympia -- Olympia Marble

M: dry or rocky forests, slopes; host plant -- cresses, primarily *Arabis*; TN [1?], VA [1-2]

Euphyes conspicua -- Black Dash

CM: marshes, wet meadows, but rarely in bogs; host plant -- sedges, mainly *Carex stricta*; VA [1]

Incisalia polios -- Hoary Elfin

M: sunny, dry slopes and other barren or rocky habitats; host plant -- heaths, possibly trailing arbutus (*Epigaea repens*) in the Appalachians; VA [2?]

Leptotes cassius theonus -- Cassius Blue @

TC: mainly coastal towns, gardens, and residential areas; SC [3]

Phyciodes texana seminole -- Texan Crescent

C: near banks of rivers and streams; host plant -- species in the Acanthus family (*Acanthaceae*) such as *Dicliptera*; SC [2]

Speyeria atlantis -- Atlantis Fritillary

M: cool, open woods, wooded streams, clearings; host plant -- violets (*Viola*); VA [4-5?]

REFERENCES

- Blatchley, W.S. 1920.** The Orthoptera of Northeastern America with Especial Reference to the Faunas of Indiana and Florida. The Nature Publ. Co; Indianapolis.
- Brimley, C.S. 1938.** The Insects of North Carolina. NC. Dept. of Agriculture; Raleigh.
- Carle, F.L. 1982.** A Contribution to the Knowledge of the Odonata. PhD. Dissertation, Virg. Polytechnic Institute; Blacksburg.
- Cuyler, R.D. 1968.** Range extensions of Odonata in the Southeastern States. Ent. News. 79:29-34.
- Cuyler, R.D. 1984.** Range extensions of Odonata in North Carolina, United States. Notul. Odonatol. 2:55-57.
- Dakin, M.E. and Hays, K.L. 1970.** A Synopsis of Orthoptera (*Sensu Lato*) of Alabama. Agric. Exp. Station, Auburn Univ. Bull. 404.
- Hebard, M. 1935.** New genera and species of the Melanopli found within the United States and Canada (Orthoptera, Acrididae): Parts V and VI. Trans. Am. Ent. Soc. 60:337-390.
- Hebard, M. 1937.** New genera and species of the Melanopli found within the United States and Canada (Orthoptera, Acrididae): Parts X to XIV. Trans. Am. Ent. Soc. 63:147-175.
- Helfer, J.R. 1987.** How to Know the Grasshoppers, Crickets, Cockroaches, and their Allies. Dover Publ. Inc.; NY.
- Needham, J.G. and Westfall, J.M. Jr. 1954.** A Manual of the Dragonflies of North America (Anisoptera). Univ. Cal. Press; Berkeley.
- Otte, D. 1979.** Descriptions of new North American Gomphocerine grasshoppers (Gomphocerinae: Acrididae). Proc. Acad. Nat. Sci. Phila. 131:231-243.
- Otte, D. 1981.** The North American Grasshoppers. Vol. I: Acrididae -- Gomphocerinae and Acridinae. Harvard Univ. Press; Cambridge.
- Rehn, J.A.G. and Hebard, M. 1910.** Preliminary studies of North Carolina Orthoptera. Proc. Nat. Acad. Sci. Philad. 62:615-650.
- Rehn, J.A.G. and Hebard, M. 1916.** Studies in the Dermaptera and Orthoptera of the Coastal Plain and Piedmont Region of the Southeastern United States. Proc. Nat. Acad. Sci. Philad. 68:87-314.
- Wray, D.L. 1967.** Insects of North Carolina. Third Supplement. NC Dept. of Agric.; Raleigh.

**NORTH CAROLINA NATURAL HERITAGE PROGRAM
SPECIAL ANIMAL SURVEY FORM**

Scientific Name : _____

Common Name: _____

Observer(s): _____

Date(s) of Observation: _____

County: _____ 7.5' Quad Map: _____

Exact Location (be specific! — attach copy of map with site marked): _____

Number of Animals (include age and sex, if known): _____

Type of Observation (sight record, vocal record, specimen, photograph, etc.): _____

Behavior of Animals (singing, foraging, at nest, etc.): _____

Habitat (use NC NHP natural community name if known; describe dominant vegetation,
maturity of vegetation, slope, aspect, etc.): _____

Owner(s) of Land, if known: _____

Other Comments (significance of record, disturbance to habitat, etc.): _____

Person making this report: _____

Address: _____

Date: _____

Phone: _____

Return form to: N.C. Natural Heritage Program; Division of Parks and Recreation
P.O. Box 27687; Raleigh, NC 27611



NC DENR Library 919-715-4161



3 1610 00003059 2